ANAND'S ATLAS OF PATHOLOGY

WEB VERSION 1.0

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5. To all my students – Past, Present and Future

6. To Abhinandan for laying the ground work of this Atlas

7. Professor. Dr.P.M.Subramaniam without whose immense help this atlas would not have seen the light of the day

THIS ATLAS IS ONLY A WORK BOOK FOR IDENTIFICATION OF SLIDES AND SPECIMENS IN PATHOLOGY PRACTICAL CLASSES

ONLY THE MOST IMPORTANT POINTS ARE PROVIDED FOR EACH SLIDE / SPECIMEN

STANDARD TEXTBOOKS OF PATHOLOGY SHOULD BE REFERRED FOR ADDITIONAL POINTS

THIS ATLAS WILL SERVE AS A
RAPID REFERENCE GUIDE FOR
UNDERGRADUATE AND POSTGRADUATE
MEDICAL STUDENTS DURING PATHOLOGY
PRACTICAL CLASSES AND ALSO DURING EXAMS

THIS ATLAS IS A FREE DISTRIBUTION

ANY STUDENT, RESEARCHER, AUTHOR,
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OBTAINING PHOTOGRAPHS OF THE SLIDES
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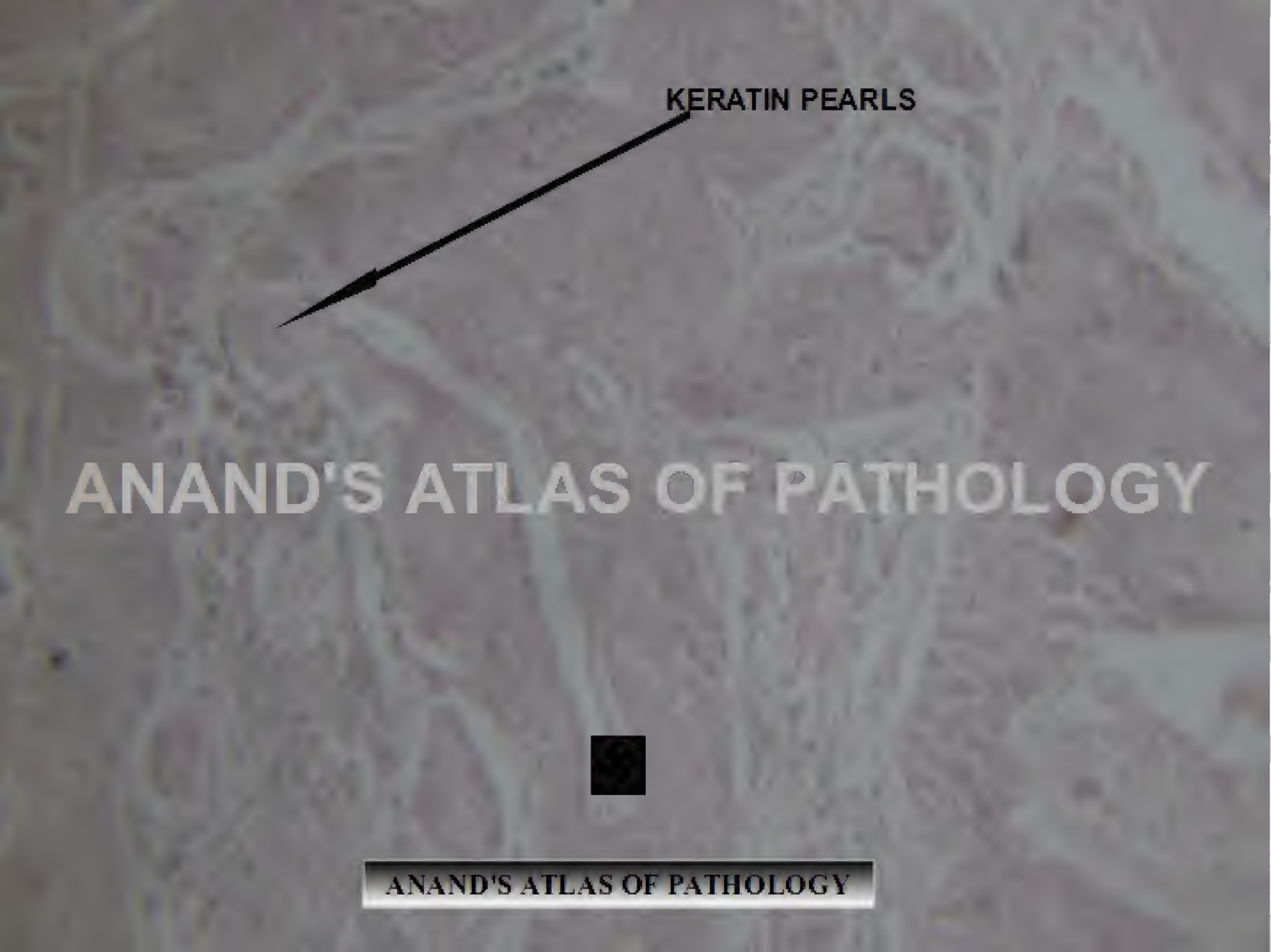

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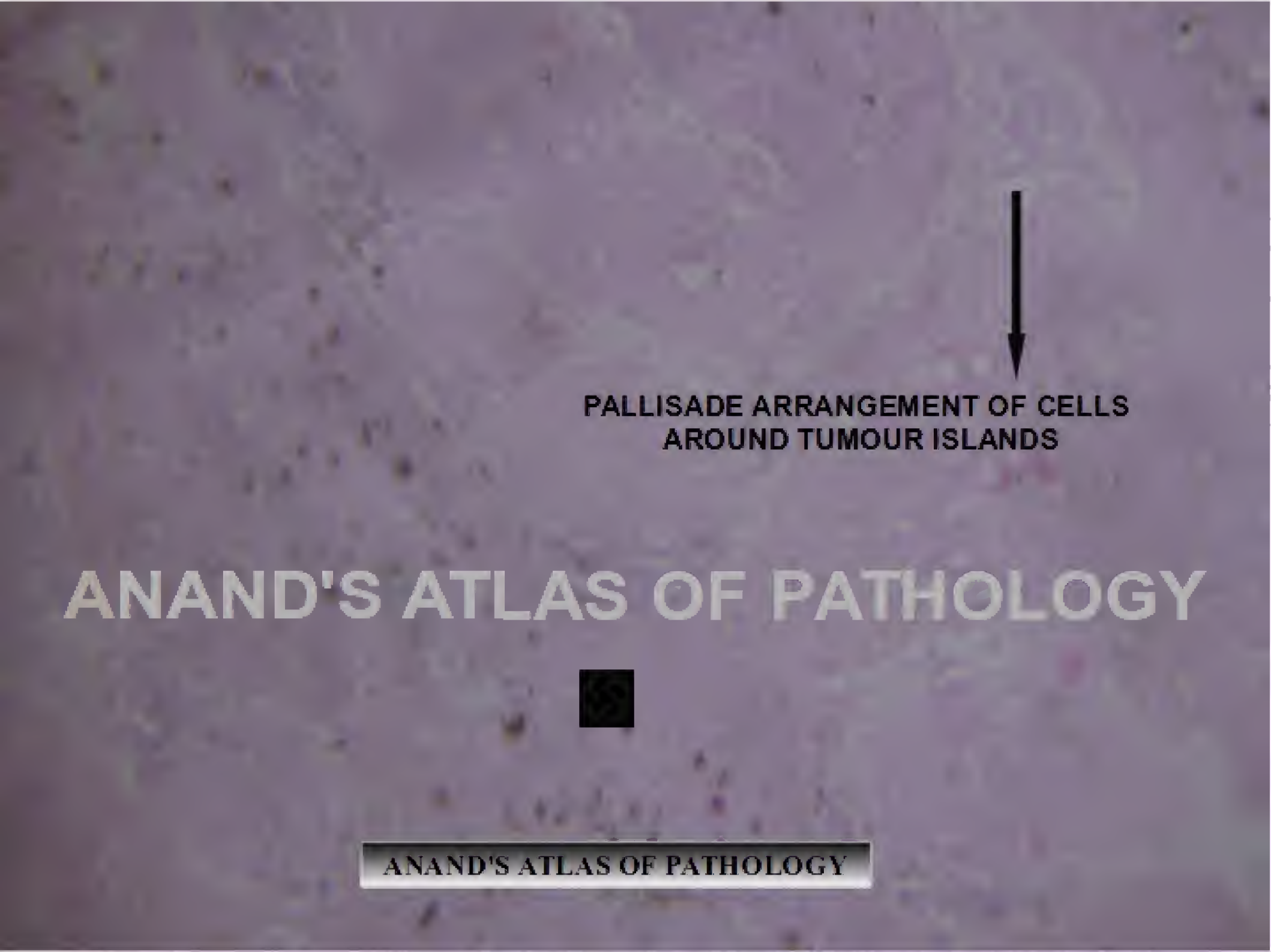
USUALLY CHARACTERISED BY AN ULCER EITHER IN THE FOREHEAD OR FACE

THE ULCER IS FIXED TO THE UNDERLYING TISSUE

THE EDGES OF THE ULCER LOOK LIKE
AS IF THEY HAVE BEEN
GNAWED BY A RAT
HENCE THE NAME RODENT ULCER


PALLISADE ARRANGEMENT OF CELLS
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BASAL CELL CARCINOMA – RODENT ULCER

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PLEOMORPHIC ADENOMA USUALLY OCCURS AS A PAINLESS GROWTH IN THE PAROTID REGION

TUMOUR CELLS EMBEDDED IN
LOOSE CONNECTIVE
TISSUE STROMA

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PLEOMORPHIC ADENOMA

MIXED TUMOUR OF SALIVARY GLANDS

IT IS A BENIGN EPITHELIAL NEOPLASM PRODUCING GLAND PATTERNS

A SLOW GROWING, WELL DEMARCATED, ENCAPSULATED LESION

COMMONLY AFFECTS PAROTID GLAND

CHARACTERISED BY PAINLESS SWELLING AT THE ANGLE OF THE JAW

PLEOMORPHIC ADENOMA

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DISRUPTION OF NORMAL ARCHITECTURE OF HEPATOCYTES

BRIDGING FIBROUS SEPTA ARE SEEN

MALLORY BODY

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CIRRHOSIS OF LIVER

IT IS AN END STAGE OF CHRONIC LIVER DISEASE

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THERE IS DISRUPTION OF NORMAL ARCHITECTURE OF LIVER

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LOBAR PNEUMONIA

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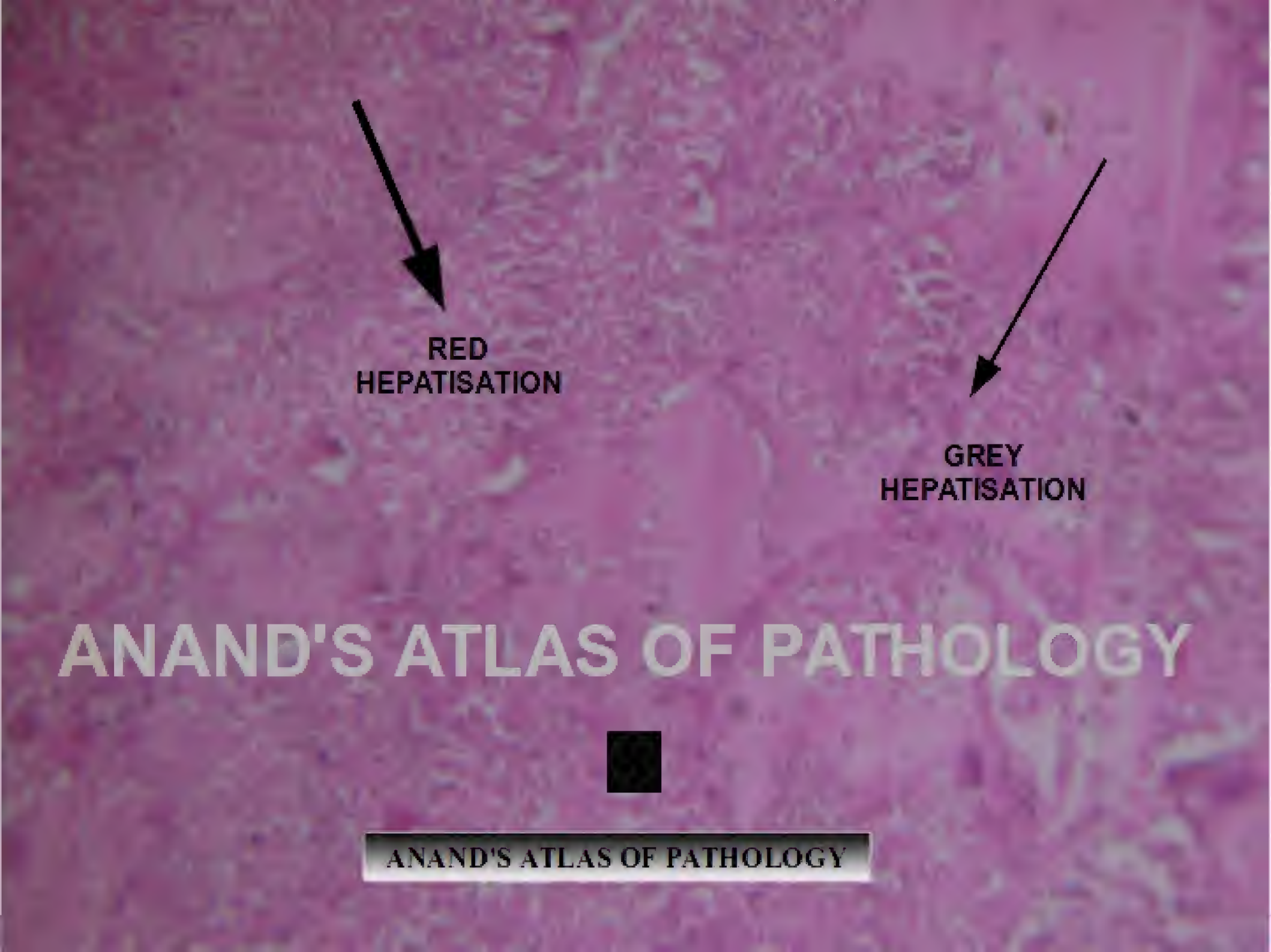
LUNG BIOPSY IS DONE

LOBECTOMY IS DONE IN EXTREME CASES


RED
HEPATISATION
GREY
HEPATISATION
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LOBAR PNEUMONIA

IT IS A ACUTE BACTERIAL PNEUMONIA

USUALLY CAUSED BY STREPTOCOCCUS PNEUMONIAE

EVOLUTION OF DISEASE IS THROUGH FOUR STAGES

STAGE OF CONGESTION, RED HEPATISATION, GRAY HEPATISATION AND RESOLUTION

LOBAR PNEUMONIA

IN STAGE OF RED HEPATISATION, ALVEOLAR SPACES ARE PACKED WITH NEUTROPHILS, RED CELLS AND FIBRIN

IN STAGE OF GRAY HEPATISATION, RED CELLS GET LYSED

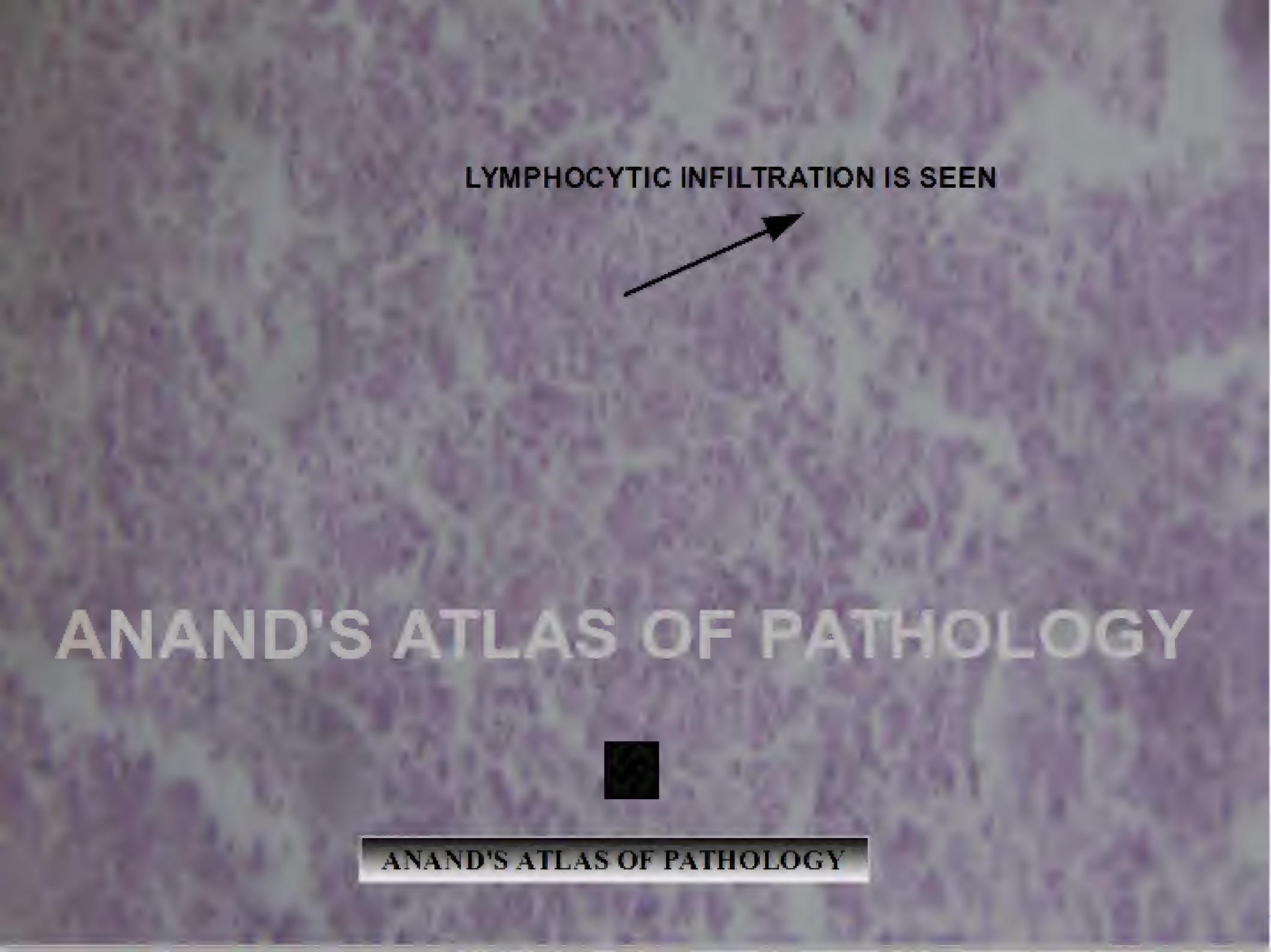
IN STAGE OF RESOLUTION, EXUDATES WITHIN ALVEOLI ARE ENZYMATICALLY DIGESTED AND EITHER UNDERGO RESORPTION OR IS EXPECTORATED

SEMINOMA TESTIS

MALE PATIENT USUALLY PRESENTS WITH A PAINLESS MASS IN THE SCROTUM

TESTICULAR BIOPSY IS DONE FOR CONFIRMATIONOF DIAGNOSIS

ORCHIDECTOMY IS DONE


LYMPHOCYTIC INFILTRATION IS SEEN
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SEMINOMA TESTIS

- IT IS A GERM CELL TUMOUR
- CRYPTORCHIDISM IS A COMMONLY ASSOCIATED CAUSE
- IT IS COMPOSED OF LARGE CELLS WITH DISTINCT CELL BORDERS, CLEAR GLYCOGEN RICH CYTOPLASM
- PRESENCE OF ROUND NUCLEI WITH CONSPICUOUS NUCLEOLI
- CELLS ARE ARRANGED IN SMALL LOBULES WITH INTERVENING FIBROUS SEPTA
- LYMPHOCYTIC INFILTRATION IS SEEN
- GRANULOMATOUS INFLAMMATORY REACTION CAN BE PRESENT

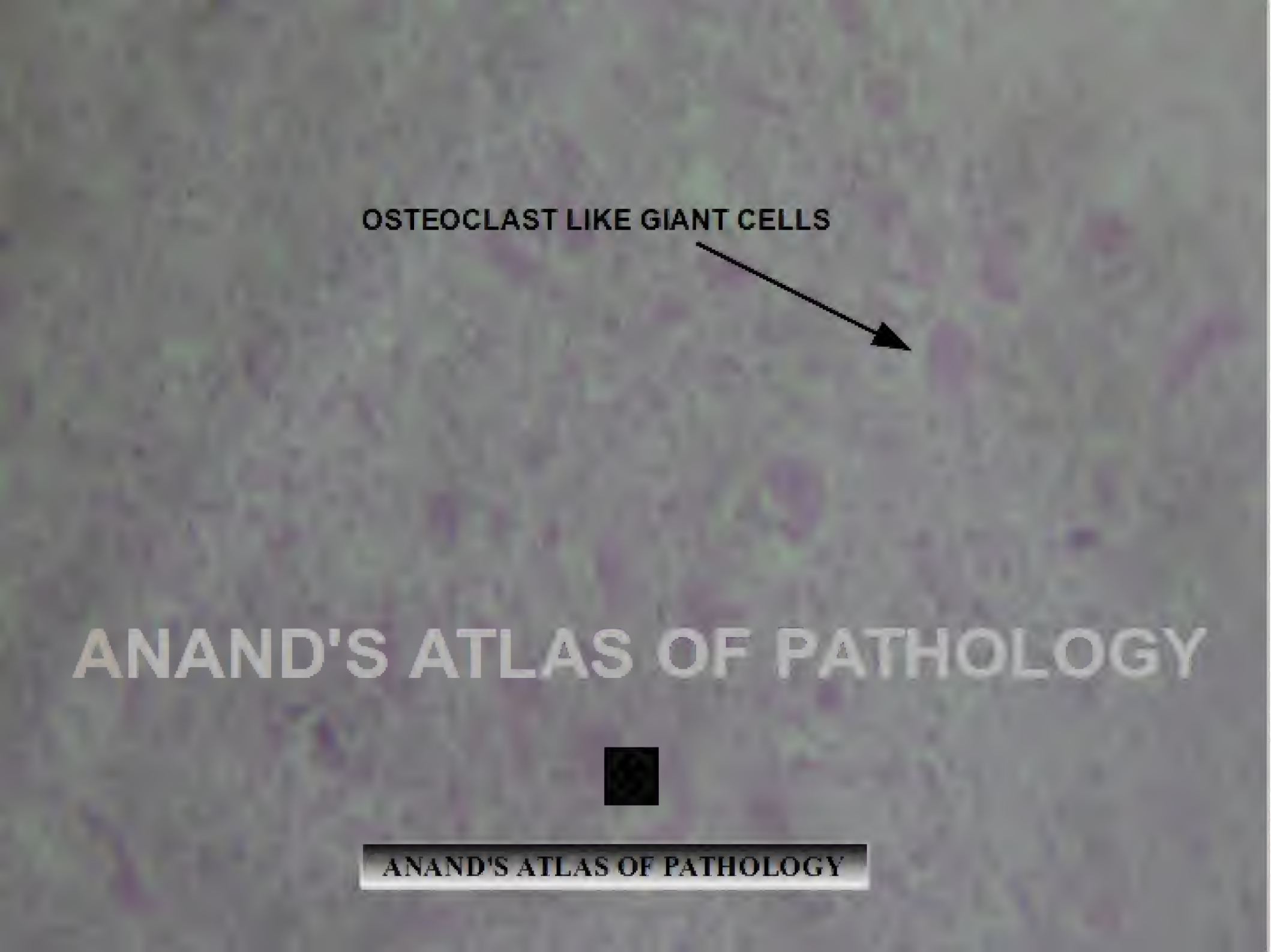
OSTEOCLASTOMA – GIANT CELL TUMOUR

PRESENTS AS A CYSTIC
BONY LESION

USUALLY AROUND THE 2ND AND 3RD DECADE

LONG BONES ARE AFFECTED

LESIONS ARE PRESENT AROUND
THE EPIPHYSIS


OSTEOCLAST LIKE GIANT CELLS
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OSTEOCLASTOMA – GIANT CELL TUMOUR

ALSO KNOWN AS GIANT CELL TUMOUR OF BONE

THE NEOPLASM CONTAINS LARGE NUMBERS OF OSTEOCLAST LIKE GIANT CELLS ADMIXED WITH MONONUCLEAR CELLS

USUALLY ARISES FROM EPIPHYSES OF LONG BONES

DISTAL FEMUR, PROXIMAL TIBIA, PROXIMAL HUMERUS AND DISTAL RADIUS ARE USUAL SITES

OSTEOCLASTOMA – GIANT CELL TUMOUR

MULTINUCLEATED GIANT CELLS ARE THE CLASSICAL HISTOLOGICAL PICTURE

GIANT CELLS ARE DERIVED FROM FUSION OF MONOCYTES

NEOPLASTIC COMPONENT IS MADE OF ROUND TO SPINDLE SHAPED MONONUCLEAR CELLS

RENAL CELL CARCINOMA

PATIENT PRESENTS WITH MASS
IN THE ABDOMEN
PAINLESS HAEMATURIA AND
COSTOVERTEBRAL PAIN

OCCURS AFTER THE 4TH DECADE

RENAL BIOPSY IS DONE FOR
CONFIRMATION OF DIAGNOSIS

NEPHRECTOMY IS DONE

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RENAL CELL CARCINOMA

THESE TUMOURS ARE DERIVED FROM RENAL TUBULAR EPITHELIUM

HENCE THEY PREDOMINANTLY AFFECT THE CORTEX OF THE KIDNEY

THREE TYPES - CLEAR CELL CARCINOMA, PAPILLARY RENAL CELL CARCINOMA AND CHROMOPHOBE RENAL CARCINOMA

CLEAR CELL CARCINOMA IS THE MOST COMMONEST TYPE

RENAL CELL CARCINOMA

TUMOR CELLS APPEAR VACUOLATED DUE TO PRESENCE OF LIPID MATERIAL AND CAN BE DEMARCATED ONLY BY THEIR CELL MEMBRANE

THEIR NUCLEI ARE SMALL AND ROUND

ALSO SEEN ARE GRANULAR CELLS RESEMBLING TUBULAR EPITHELIUM WHICH HAVE SMALL ROUND REGULAR NUCLEI ENCLOSED WITHIN GRANULAR PINK CYTOPLASM

CONNECTIVE TISSUE STROMA IS USUALLY SCANT BUT HIGHLY VASCULARISED

CHRONIC PYELONEPHRITIS

PATIENT IS A DIABETIC

PRESENTING WITH FEVER,
MALAISE AND BACKPAIN

PYURIA IS A PRESENTING FEATURE

ULTRASOUND AND RENAL BIOPSY
LEADS TO CONFIRMATION
OF DIAGNOSIS

NEPHRECTOMY IS DONE IN EXTREME CASES

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CHRONIC PYELONEPHRITIS

THIS CONDITION PREDOMINANTLY PRESENTS WITH INTERSTITIAL INFLAMMATION AND SCARRING OF RENAL PARENCHYMA ASSOCIATED WITH VISIBLE SCARRING AND DEFORMITY OF PELVICALYCEAL SYSTEM

UNEVEN INTERSTITIAL FIBROSIS, INFLAMMATORY INFILTRATE OF LYMPHOCYTES AND PLASMA CELLS ARE SEEN

CHRONIC PYELONEPHRITIS

DILATATION OR CONTRACTION OF LOBULES WITH ATROPHY OF LINING EPITHELIUM ARE SEEN

COLLOID CASTS THAT SUGGEST APPEARANCE OF THYROID TISSUE CALLED AS **THYROIDISATION** IS SEEN

CHRONIC INFLAMMATORY INFILTRATION AND FIBROSIS OF CALYCEAL MUCOSA AND WALL CAN BE VISUALISED

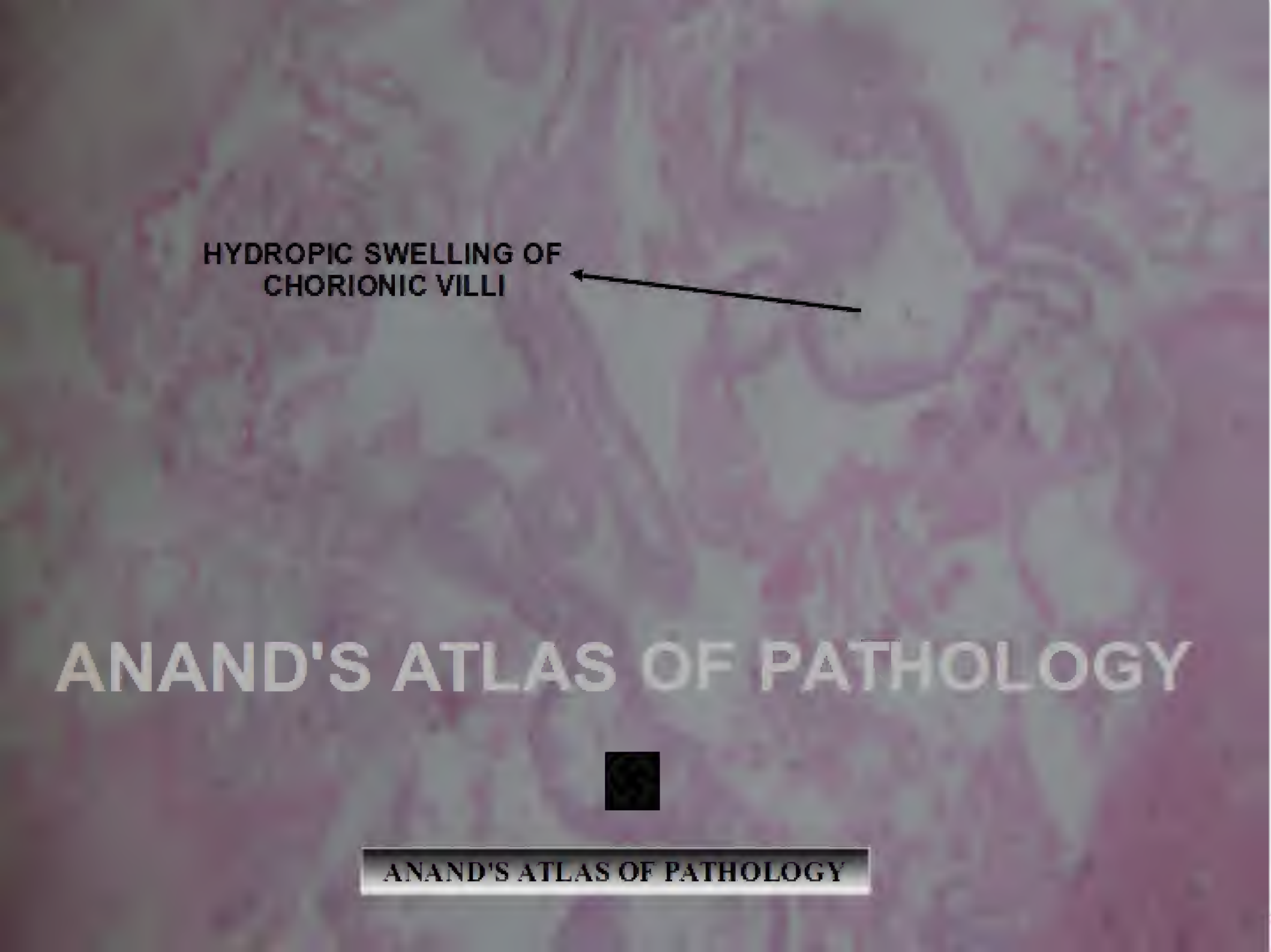
VESICULAR MOLE

FEMALE PATIENT USUALLY PRESENTS WITH AMENORRHOEA AND BLEEDING PER VAGINUM

GROSS APPEARANCE RESEMBLES GRAPE LIKE MASSES

SERUM HCG LEVELS ARE ELEVATED

DILATATION AND CURETTAGE IS DONE


HYDROPIC SWELLING OF
CHORIONIC VILLI
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VESICULAR MOLE

IT IS A GESTATIONAL TROPHOBLASTIC DISEASE

ALSO KNOWN AS **HYDATIDIFORM MOLE**

IT CAN BE COMPLETE OR PARTIAL

CHARACTERISED BY VOLUMINOUS MASS OF SWOLLEN, CYSTICALLY DILATED CHORIONIC VILLI APPEARING LIKE A **BUNCH OF GRAPES**

VESICULAR MOLE

HISTOLOGICAL PICTURE - HYDROPIC SWELLING OF CHORIONIC VILLI AND ABSENCE OF VASCULARISATION OF THE VILLI

THE CENTRAL SUBSTANCE OF THE VILLI IS LOOSE MYXOMATOUS AND OEDEMATOUS STROMA

THE CHORIONIC EPITHELIUM SHOWS SOME DEGREE OF PROLIFERATION OF CYTOTROPHOBLAST AND SYNCYTIOTROPHOBLAST

PAPILLARY CARCINOMA OF THYROID

PRESENTS AS A SOLITARY NODULE IN THE MIDLINE OF THE NECK

SWELLING IS OF A SHORT DURATION

ACCOMPANIED BY HOARSENESS OF VOICE

BIOPSY IS THE INVESTIGATIVE PROCEDURE


PSAMMOMA BODY
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PAPILLARY CARCINOMA OF THYROID

- MOST COMMON FORM OF THYROID MALIGNANCY
- NUCLEI OF MALIGNANT CELLS CONTAIN FINELY DISPERSED CHROMATIN PRESENTING A GROUND GLASS APPEARANCE
- PAPILLARY ARCHITECTURE IS PRESENT
- NEOPLASTIC PAPILLAE HAVE DENSE FIBROVASCULAR CORES

PAPILLARY CARCINOMA OF THYROID

CONCENTRICALLY CALCIFIED STRUCTURES CALLED AS **PSAMMOMA BODIES** ARE PRESENT WITHIN THE PAPILLAE

SOME TUMOURS ARE COMPOSED PREDOMINANTLY OF FOLLICLES ONLY

METASTASIS IS USUALLY TO THE ADJACENT LYMPH NODES

ADENOCARCINOMA OF STOMACH

PATIENT PRESENTS WITH SEVERE PAIN IN THE ABDOMEN, LOSS OF APETITE AND WEIGHT LOSS

BIOPSY IS CONFIRMATORY

PARTIAL OR SUBTOTAL GASTRECTOMY IS DONE

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ADENOCARCINOMA OF STOMACH

ADENOCARCINOMA IS A LESION IN WHICH NEOPLASTIC EPITHELIAL CELLS GROW IN GLAND PATTERNS

IN EARLY STAGE THE LESION IS CONFINED TO MUCOSA AND SUBMUCOSA

IN ADVANCED STAGE THE LESION EXTENDS BELOW THE SUBMUCOSA INTO THE MUSCULAR WALL

METASTASIS - LYMPHATIC SPREAD - LEFT SUPRACLAVICULAR LYMPHADENITIS - VIRCHOW'S NODES

ADENOCARCINOMA OF STOMACH

HISTOLOGICAL TYPES - INTESTINAL AND DIFFUSE VARIANTS

INTESTINAL - MALIGNANT CELLS FORMING NEOPLASTIC INTESTINAL GLANDS RESEMBLING COLONIC ADENOCARCINOMA

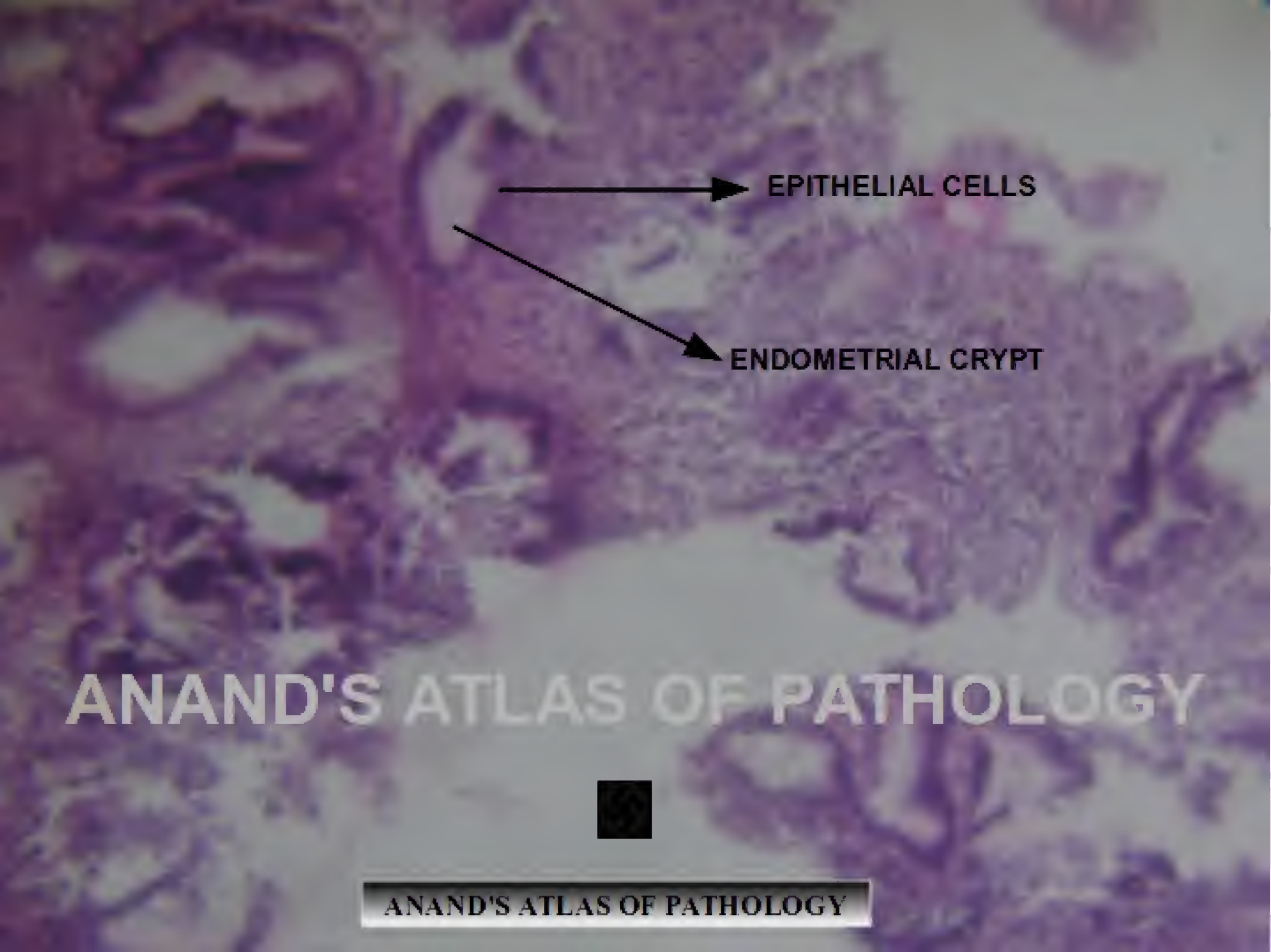
DIFFUSE - GASTRIC TYPE MUCOSAL CELLS, THEY DO NOT FORM GLANDS - SIGNET RING CELLS ARE SEEN

TRANSCOELOMIC SPREAD - TO OVARIES CAUSES KRUKENBERG'S TUMOUR

PROLIFERATIVE ENDOMETRIUM

FEMALE PATIENT PRESENTS
WITH HISTORY OF INFERTILITY

ENDOMETRIAL BIOPSY AND
CURETTAGE IS DONE



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PROLIFERATIVE ENDOMETRIUM

IT IS THE OESTROGEN PHASE OF THE OVARIAN CYCLE

AFTER MENSTRUATION ONLY A THIN LAYER OF ENDOMETRIAL STROMA LIES AT THE BASE OF ORIGINAL ENDOMETRIUM

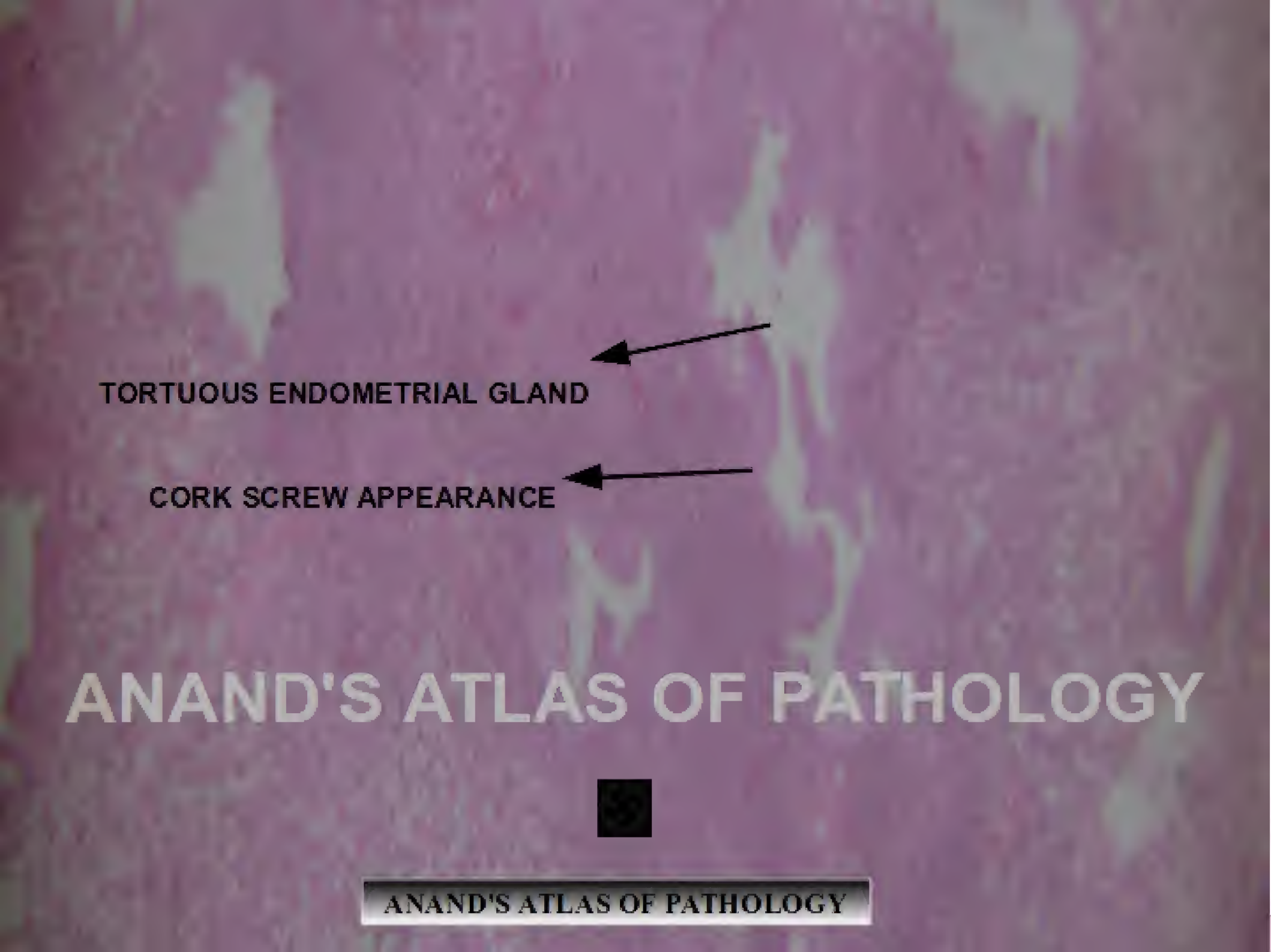
ONLY EPITHELIAL CELLS ARE LEFT IN THE REMAINING DEEP PORTIONS OF GLANDS AND CRYPTS OF ENDOMETRIUM

THE STROMAL CELLS AND EPITHELIAL CELLS PROLIFERATE RAPIDLY UNDER THE INFLUENCE OF OESTROGEN

SECRETORY ENDOMETRIUM

RELATIVELY YOUNG FEMALE PATIENT PRESENTS WITH HISTORY OF INFERTILITY

PREMENSTRUAL ENDOMETRIAL CURETTAGE IS DONE


TORTUOUS ENDOMETRIAL GLAND
CORK SCREW APPEARANCE
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SECRETORY ENDOMETRIUM

IT IS THE PROGESTERONE PHASE OF THE OVARIAN CYCLE

THE ENDOMETRIAL GLANDS INCREASE IN TORTUOSITY PRESENTING A CORK SCREW APPEARANCE

EXCESS OF SECRETORY SUBSTANCES ACCUMULATE IN THE GLANDULAR EPITHELIAL CELLS

CYTOPLASM OF THE STROMAL CELLS ALSO INCREASE

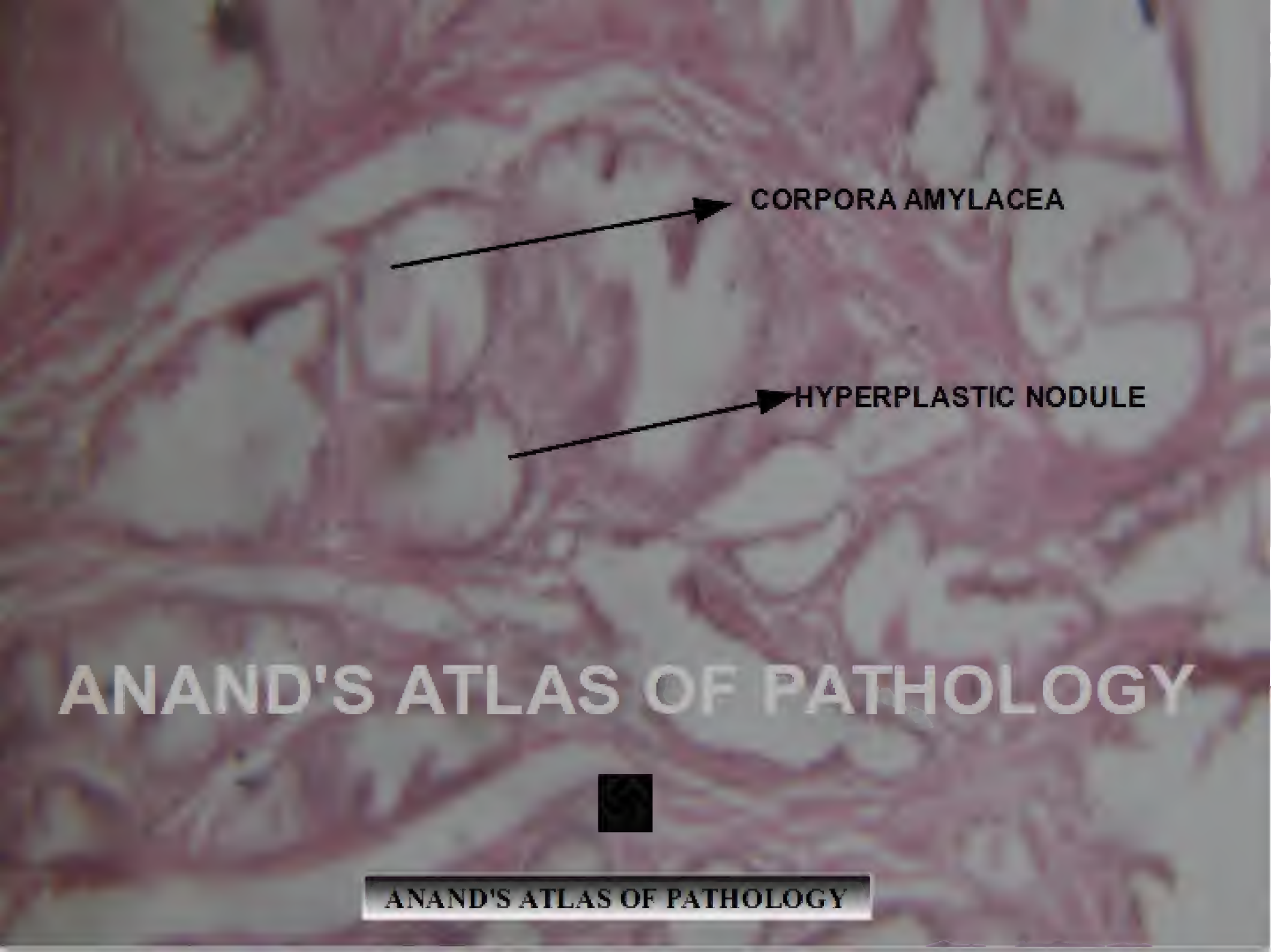
THERE IS ALSO AN INCREASE OF LIPID AND GLYCOGEN DEPOSITS IN THE STROMAL CELLS

BENIGN HYPERPLASIA OF PROSTATE

PATIENT IS USUALLY AN ELDERLY MALE IN THE 6TH DECADE OF LIFE

PRESENTING COMPLAINTS INCLUDE FREQUENT MICTURITION, URGENCY, DRIBBLING DROPLETS OF URINE AND PAIN

PROSTATECTOMY IS DONE



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BENIGN HYPERPLASIA OF PROSTATE

ALSO KNOWN AS NODULAR HYPERPLASIA, GLANDULAR AND STROMAL HYPERPLASIA

CHARACTERISED BY PROLIFERATION OF EPITHELIAL AND STROMAL ELEMENTS RESULTING IN ENLARGEMENT OF THE GLAND

ENLARGEMENT RESULTS IN URINARY OBSTRUCTION

ANDROGENS AND OESTROGENS PLAY A SYNERGISTIC ROLE IN DEVELOPMENT OF THIS CONDITION

BENIGN HYPERPLASIA OF PROSTATE

- IT ARISES FROM THE **PERIURETHRAL GLANDS** OF THE PROSTATE
- HYPERPLASTIC NODULES ARE COMPOSED OF VARYING PROPORTIONS OF PROLIFERATING GLANDULAR ELEMENTS AND FIBROMUSCULAR STROMA
- HYPERPLASTIC GLANDS ARE LINED BY TALL COLUMNAR CELLS AND A PERIPHERAL LAYER OF FLATTENED BASAL CELLS
- GLANDULAR LUMEN USUALLY CONTAINS PROTINACEOUS SECRETORY MATERIAL CALLED AS **CORPORA AMYLACEA**

COLLOID GOITRE

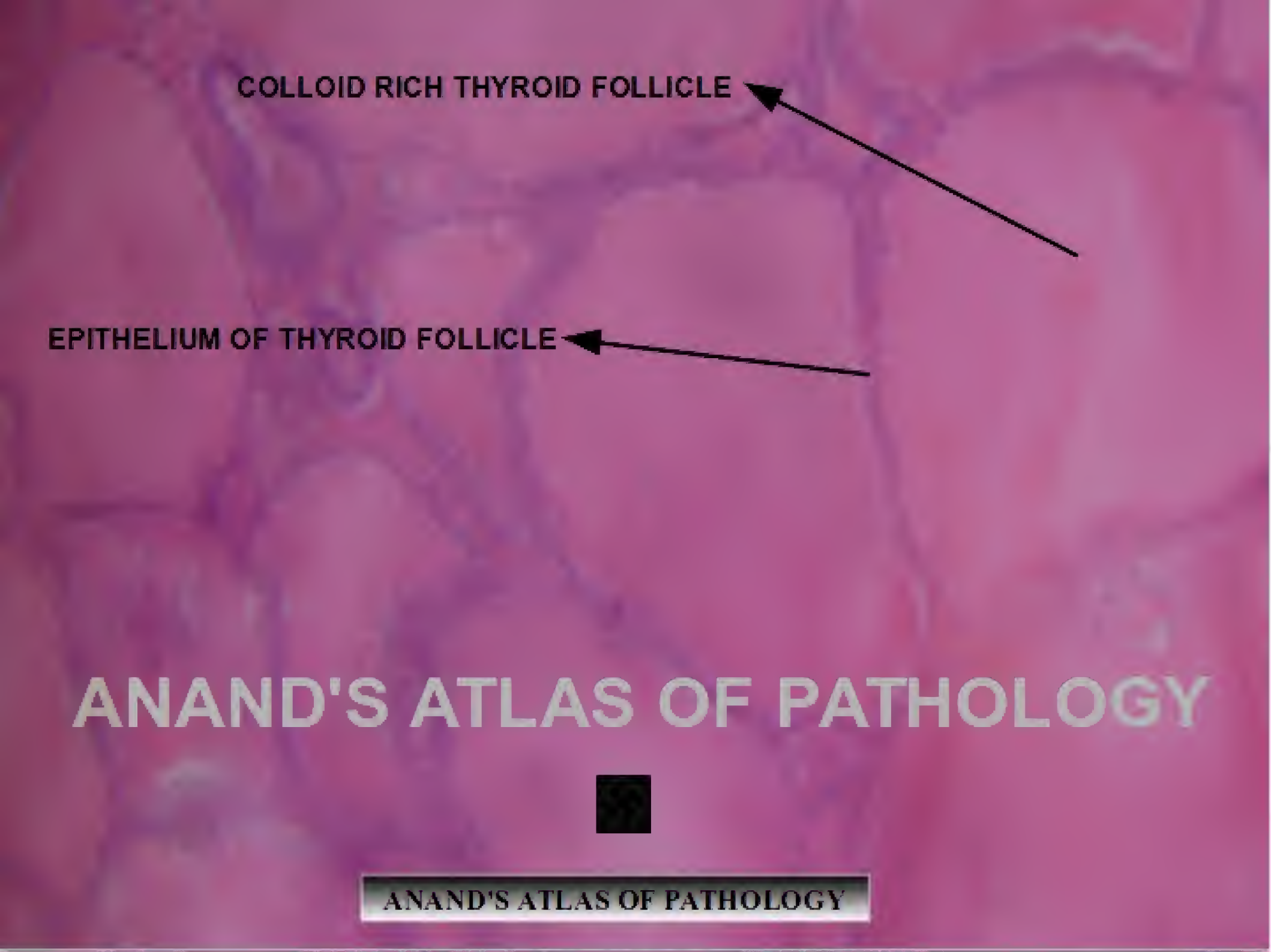
PREDOMINANTLY SEEN IN YOUNG FEMALES

PRESENTS AS GLOBULAR SWELLING
OF THE THYROID GLAND
OF LONG STANDING DURATION

BIOPSY IS CONFIRMATORY

EXCISION OF MASS IS DONE

CUT SECTION OF MASS REVEALS BROWNISH COLLOID


COLLOID RICH THYROID FOLLICLE
EPITHELIUM OF THYROID FOLLICLE
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ANAND'S ATLAS OF PATHOLOGY

COLLOID GOITRE

GOITRE IS A SIMPLE ENLARGEMENT OF THYROID GLAND

IT IS THE MOST COMMON THYROID DISEASE

IF DIETARY IODINE INCREASES OR DEMANDS FOR THYROID HARMONE DECREASES, THE STIMULATED FOLLICULAR EPITHELIUM INVOLUTES TO FORM AN ENLARGED COLLOID RICH GLAND CALLED AS COLLOID GOITRE

THE FOLLICULAR EPITHELIUM IS HYPERPLASTIC AND MAY BE FLATTENED OR CUBOIDAL DEPENDING ON THE LEVEL OF COLLOID

LEIOMYOMA OF UTERUS (FIBROID UTERUS)

FEMALE PATIENT PRESENTS
WITH COMPLAINTS OF MENORRHAGIA
URINARY DISTURBANCE AND LOW BACK ACHE

ULTRASONOGRAPHY REVEALS MASS IN
THE UTERINE WALLS

MAY BE SINGLE OR MULTIPLE

OCCURS AROUND THE 4TH DECADE

HYSTERECTOMY IS A PREFERRED
TREATMENT MODALITY

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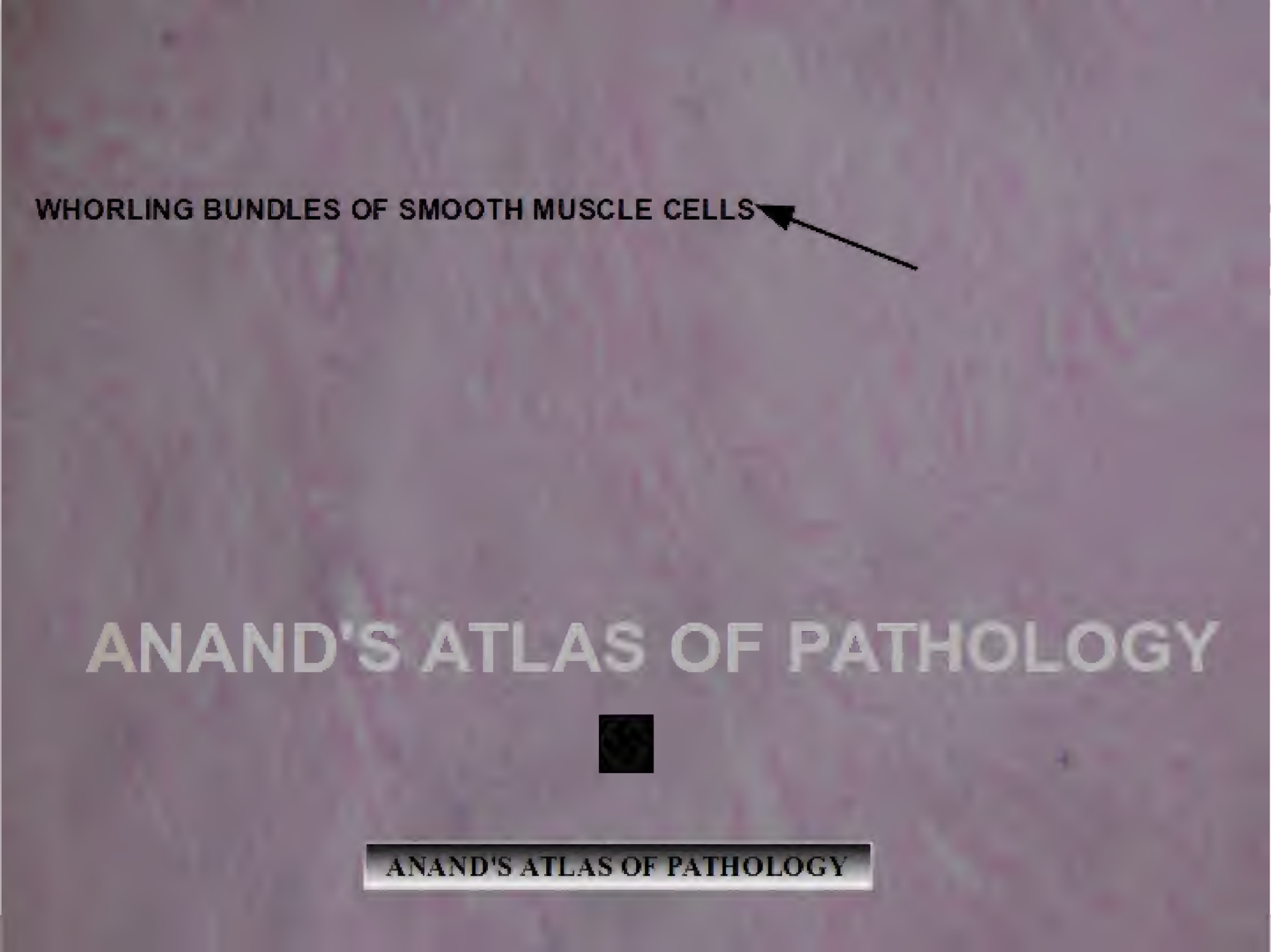

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LEIOMYOMA OF UTERUS (FIBROID UTERUS)

BENIGN TUMOUR ARISING FROM SMOOTH MUSCLE CELLS IN THE MYOMETRIUM OF UTERUS ARE TERMED AS LEIOMYOMAS

ALSO CALLED AS FIBROID UTERUS

MICROSCOPICALLY IT SHOWS WHORLING BUNDLES OF SMOOTH MUSCLE CELLS DUPLICATING THE ARCHITECTURE OF NORMAL MYOMETRIUM

FOCI OF FIBROSIS, CALCIFICATION, ISCHAEMIC NECROSIS, CYSTIC DEGENERATION AND HAEMORRHAGE MAY BE PRESENT

ACUTE APPENDICITIS

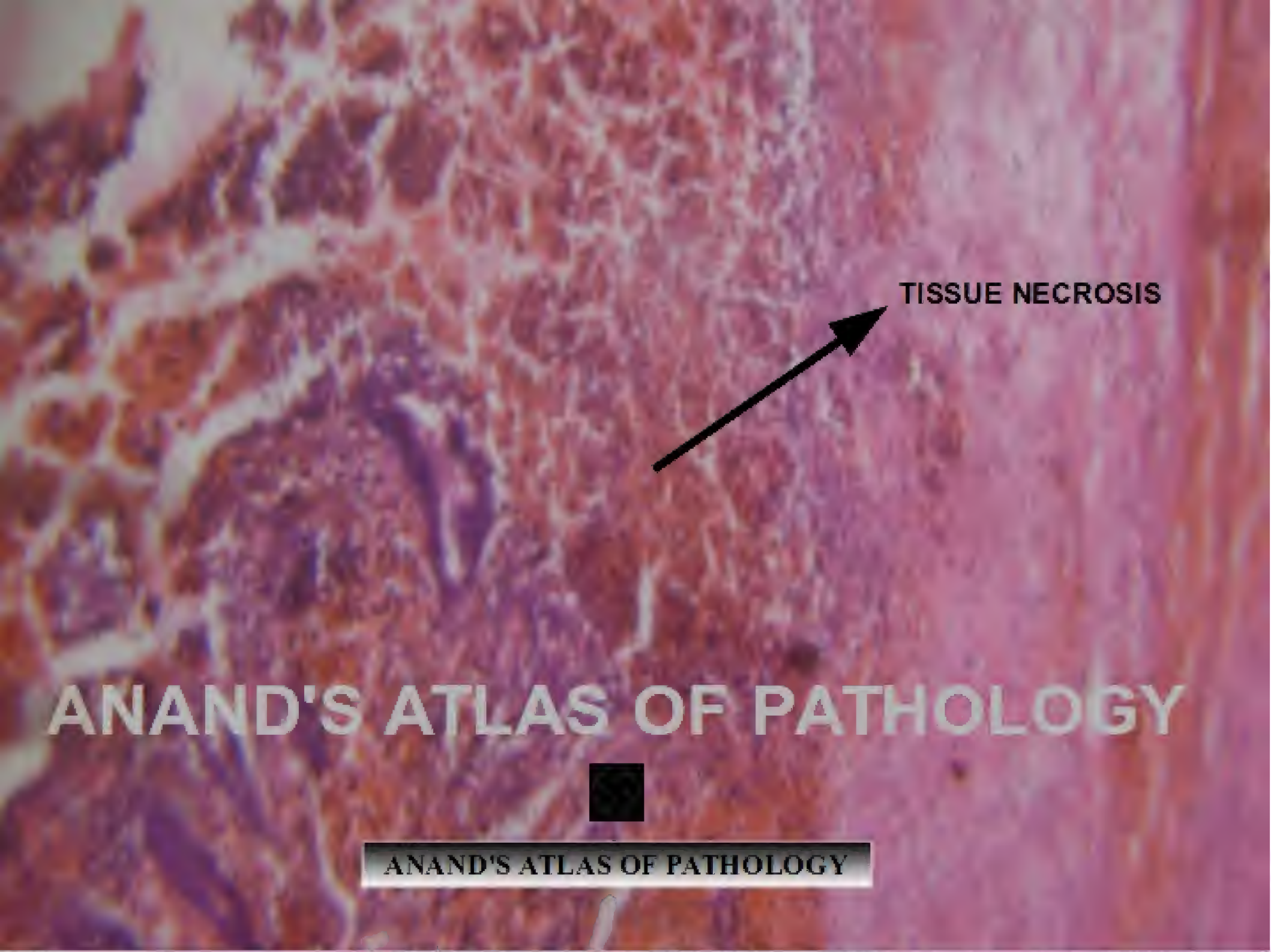
YOUNG INDIVIDUAL PRESENTS WITH SUDDEN ONSET OF FEVER, VOMITTING AND ABDOMINAL PAIN

TENDERNESS IS PRESENT IN THE RIGHT ILIAC FOSSA

BLOOD SMEAR REVEALS NEUTROPHILIA

ULTRASONOGRAPHY REVEALS AN ENLARGED AND INFLAMMED APPENDIX

APPENDICECTOMY IS DONE



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ACUTE APPENDICITIS

IN EARLY STAGES SCANT NEUTROPHILIC EXUDATES WILL BE FOUND IN THE COATS OF THE APPENDIX

THE INFLAMMATORY REACTION TRANSFORMS NORMAL GLISTENING SEROSA INTO A DULL, GRANULAR RED MEMBRANE

IN LATER STAGES, PROMINENT NEUTROPHILIC EXUDATE GENERATES A FIBROPURULENT REACTION OVER SEROSA

THIS LEADS TO AN ABSCESS FORMATION

ACUTE APPENDICITIS

ABSCESS FORMATION WITHIN THE WALLS LEADS TO ULCERATIONS AND FOCI OF NECROSIS IN THE MUCOSA

FURTHER DETERIORATION RESULTS IN GANGRENOUS NECROSIS OF APPENDICULAR MUCOSA

TUBERCULOUS LYMPHADENITIS

PATIENT PRESENTS WITH
HISTORY OF TUBECULOSIS

MULTIPLE SWELLINGS / ENLARGEMENT
OF LYMPH NODES IN THE NECK

CERVICAL GROUP OF LYMPH NODES
ARE ENLARGED

LYMPH NODE EXCISION BIOPSY
IS CONFIRMATORY


GRANULOMA
ANAND'S ATLAS OF PATHOLOGY
ANAND'S ATLAS OF PATHOLOGY

TUBERCULOUS LYMPHADENITIS

SECONDARY INFLAMMATION OF DRAINING LYMPH NODES IS CALLED AS **LYMPHADENITIS**

IT IS THE COMMONEST FORM OF EXTRAPULMONARY TUBERCULOSIS

USUALLY OCCURS IN THE CERVICAL REGION - **SCROFULA**

TUBERCULOUS LYMPHADENITIS

- AFFECTED LYMPH NODES SHOW GRANULOMATOUS INFLAMMATORY REACTION
- MAY FORM CASEATING OR NON CASEATING TUBERCLES
- GRANULOMAS ARE ENCLOSED WITHIN A FIBROELASTIC RIM PUNCTUATED BY LYMPHOCYTES
- MULTINUCLEATED GIANT CELLS WILL BE PRESENT IN THE GRANULOMAS

RHINOSPOROIDOSIS

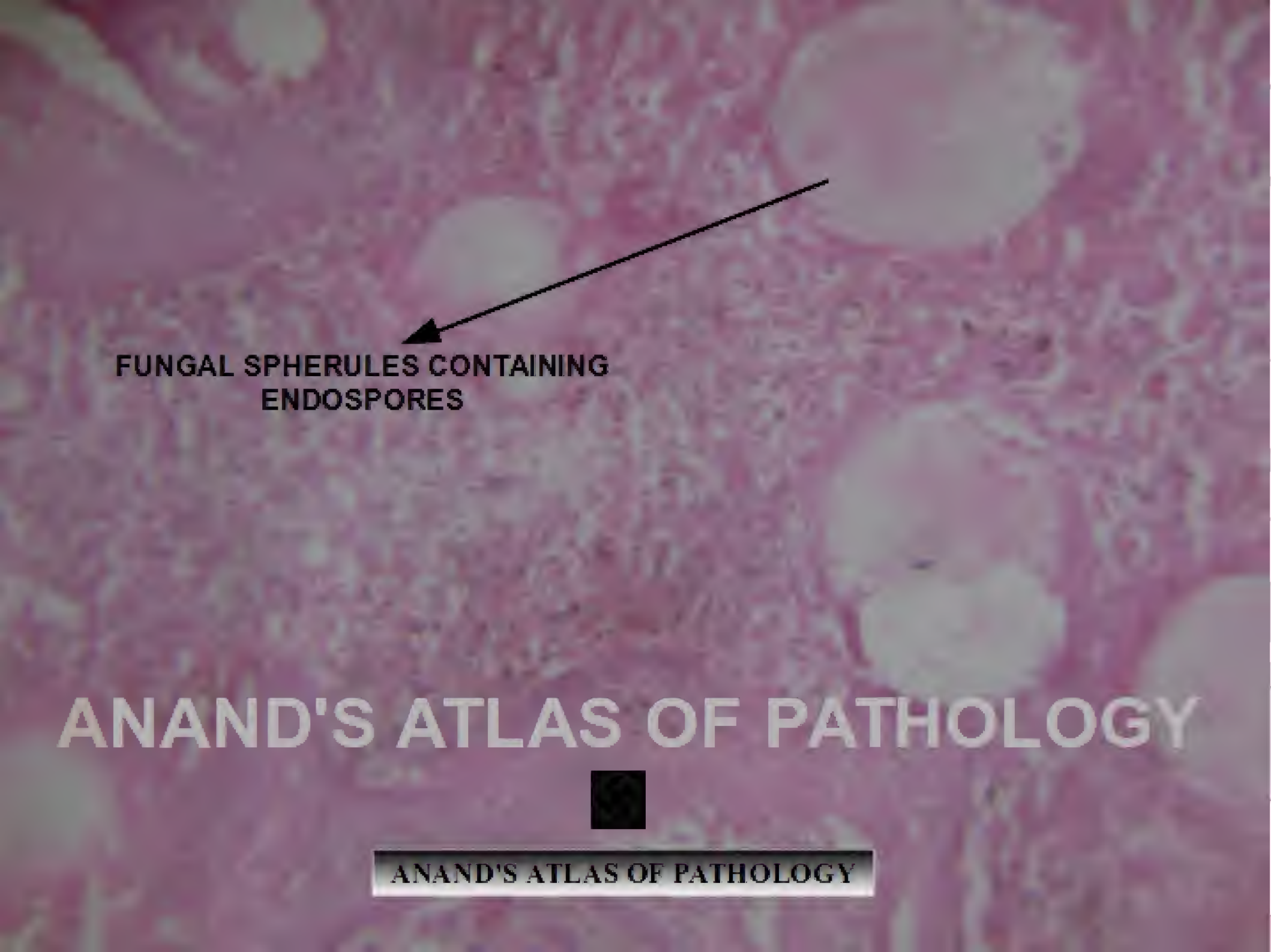
COMMONLY OCCURS IN YOUNG INDIVIDUALS

PRESENTS AS A POLYP IN THE NOSE

USUALLY INFECTION SPREADS WHO COME IN CONTACT WITH WATER BODIES LIKE SWIMMING

POLYPECTOMY IS DONE

EXCISION BIOPSY IS CONFIRMATORY



ANAND'S ATLAS OF PATHOLOGY

RHINOSPOROIDOSIS

IT IS A CHRONIC GRANULOMATOUS DISEASE

A TYPE OF SUBCUTANEOUS MYCOSES

CAUSATIVE FUNGUS IS RHINOSPORIDIUM SEEBERI

MODE OF INFECTION IS NOT KNOWN BUT THOUGHT TO ORIGINATE FROM STAGNANT WATER OR AQUATIC LIFE

FUNGUS HAS NOT BEEN CULTIVATED IN A LABORATORY

RHINOSPOROIDOSIS

CHARACTERISED BY DEVELOPMENT OF FRIABLE POLYPS CONFINED TO NOSE, MOUTH OR EYE

DISEASE IS LIMITED TO THE MUCOUS MEMBRANES

MICROSCOPICALLY LESION SHOWS LARGE NUMBERS OF FUNGAL SPHERULES EMBEDDED IN A STROMA OF CONNECTIVE TISSUE AND CAPILLARIES

THE SPHERULES CONTAIN THOUSANDS OF ENDOSPORES

MADURA MYCOSIS

OCCURS IN AGRICULTURAL WORKERS

ALSO KNOWN AS MADURA FOOT

HISTORY OF A PENETRATING INJURY IS PRESENT

PATIENT PRESENTS WITH A MASS
IN THE FOOT WITH MULTIPLE
DISCHARGING SINUSES

EXCISION BIOPSY IS DONE

ANAND'S ATLAS OF PATHOLOGY

MADURA MYCOSIS

IT IS A TYPE OF SUBCUTANEOUS MYCOSES

DISEASE FIRST REPORTED FROM MADURAI IN 1842

IT IS A CHRONIC SLOWLY PROGRESSING FUNGAL INFECTION OF THE SUBCUTANEOUS TISSUE

CAUSATIVE ORGANISM IS BELIEVED TO ENTER THROUGH A MINOR TRAUMA

ORGANISM IS MADURELLA MYCETOMI

MADURA MYCOSIS

DISEASE USUALLY BEGINS AS A SWELLING IN THE FOOT

IT BURROWS INTO DEEPER TISSUES AND RESULTS IN MULTIPLE DISCHARGING SINUSES

MICROSCOPICALLY MICROCOLONIES OF AETIOLOGICAL AGENTS IN THE FORM OF GRANULES OR GRAINS CAN BE DEMONSTRATED

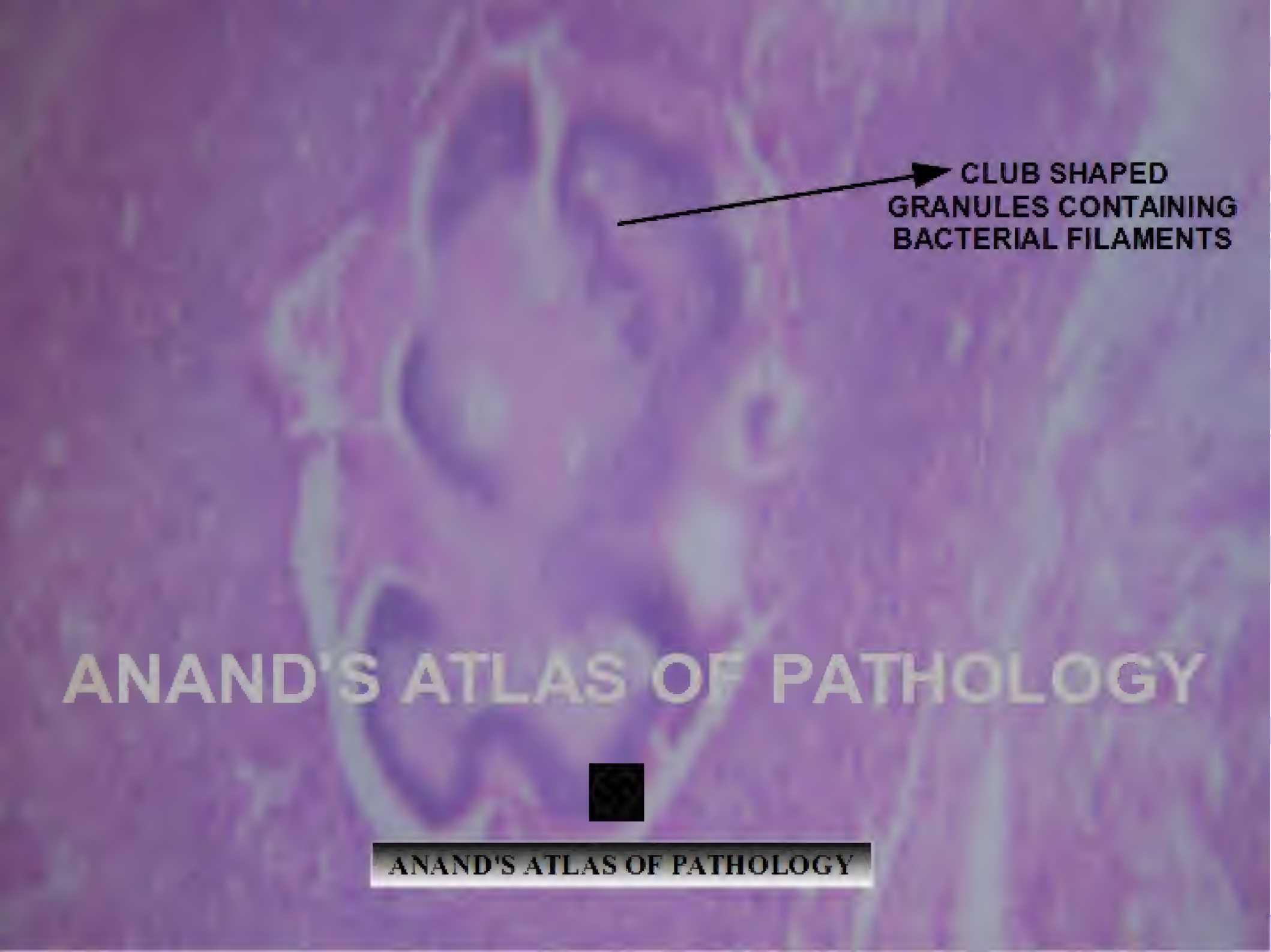
ACTINOMYCOSIS

PREDOMINANTLY SEEN IN FEMALES

PRESENTS AS A MASS AROUND THE CHEEKS AND THE JAW

MASS CONTAINS MULTIPLE DISCHARGING SINUSES

BIOPSY IS CONFIRMATORY



ANAND'S ATLAS OF PATHOLOGY

ACTINOMYCOSIS

IT IS A CHRONIC GRANULOMATOUS INFECTION

CHARACTERISED BY INDURATED SWELLINGS, SUPPURATION AND DISCHARGE OF SULPHUR GRANULES

PRESENCE OF MULTIPLE DISCHARGING SINUSES

CERVICOFACIAL TYPE PRESENTS WITH INDURATED LESIONS ON THE CHEEK AND SUBMAXILLARY REGIONS

ACTINOMYCOSES CAN ALSO PRESENT AS A MYCETOMA

ACTINOMYCOSIS

MICROSCOPICALLY THE GRANULES ARE BACTERIAL COLONIES WITH DENSE NETWORK OF FILAMENTS SURROUNDED BY A PERIPHERAL ZONE OF SWOLLEN RADIATING CLUB SHAPED STRUCTURES

THIS IS SUN RAY APPEARANCE

THE CLUBS ARE FORMED BY DEPOSITION OF LIPOID MATERIAL AROUND THE BACTERIAL FILAMENTS AS A PART OF TISSUE REACTION

FIBROADENOMA - MIXED

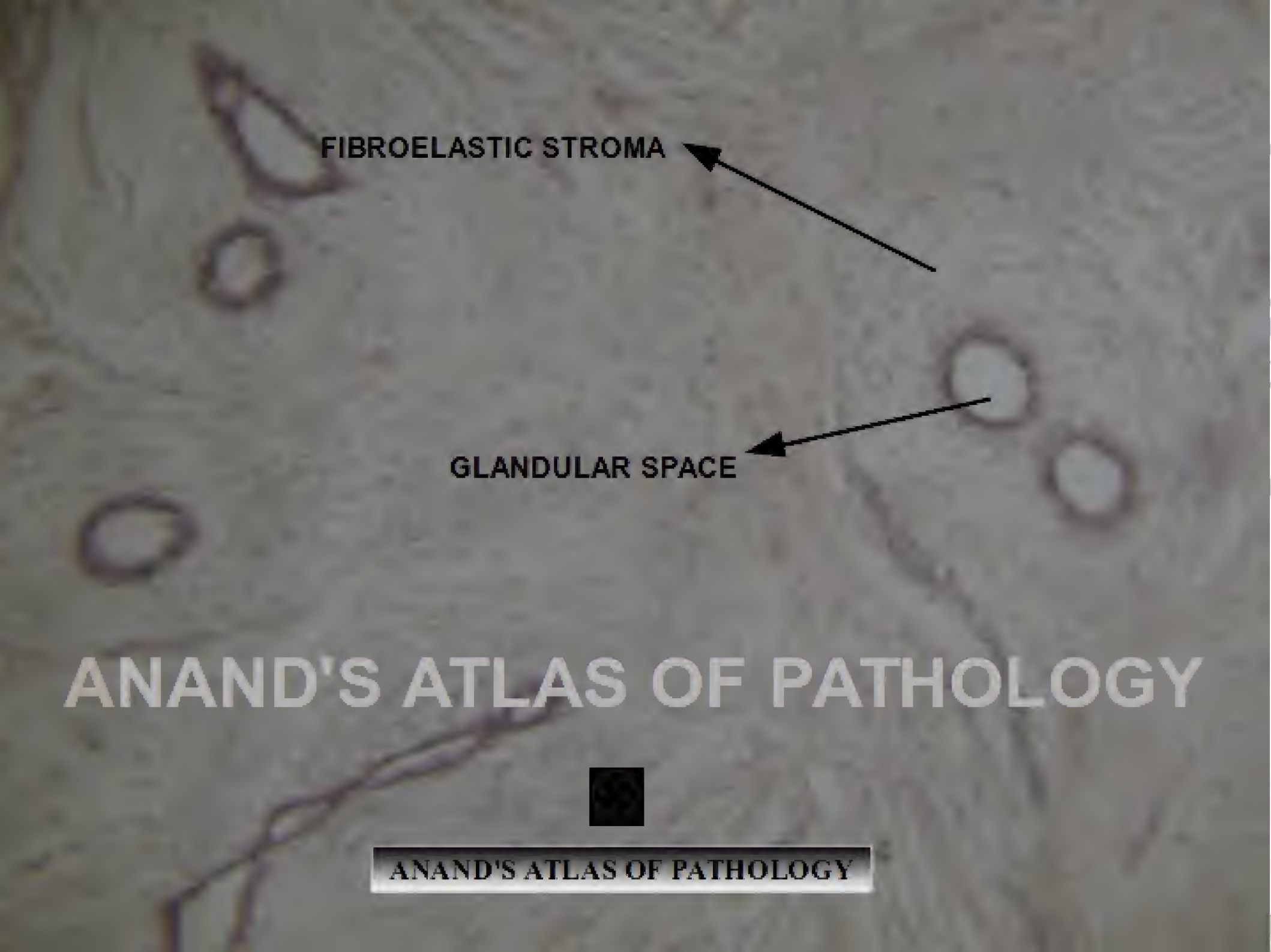
OCCURS IN YOUNG FEMALES

PRESENTS AS A FREELY MOBILE MASS IN THE BREAST

ALSO KNOWN AS THE BREAST MOUSE

FNAC IS DONE

EXCISION BIOPSY IS DONE



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FIBROADENOMA - MIXED

FIBROADENOMA OF BREAST IS A COMMON MIXED TUMOUR

IT IS ALWAYS BENIGN, RARELY UNDERGOES MALIGNANT CHANGE

TUMOUR CONTAINS A MIXTURE OF PROLIFERATED DUCTAL ELEMENTS (ADENOMA) EMBEDDED IN A LOOSE FIBROUS TISSUE (FIBROMA)

IT APPEARS IN YOUNG WOMEN AND AN INCREASE IN OESTROGEN ACTIVITY IS THOUGHT TO PLAY A ROLE IN ITS DEVELOPMENT

FIBROADENOMA - MIXED

HISTOLOGICALLY THERE IS A LOOSE FIBROELASTIC STROMA CONTAINING DUCT LIKE EPITHELIUM LINED SPACES OF VARIOUS FORMS AND SIZES

THESE GLANDULAR SPACES ARE LINED WITH SINGLE OR MULTIPLE LAYERS OF CELLS AND HAVE A WELL DEFINED INTACT BASEMENT MEMBRANE

SECTION - 2

CYTOLOGY SLIDES

LIST OF COLOUR PLATES

CARCINOMA OF BREAST

ASCITIC FLUID - SECONDARY DEPOSITS

CARCINOMA OF BREAST

OCCURS PREDOMINANTLY IN FEMALES

RARELY CAN OCCUR IN MALES ALSO

USUALLY PRESENTS AROUND THE 5TH DECADE

DIFFUSE MASS PRESENT IN THE BREAST

REGIONAL LYMPHADENITIS IS PRESENT

SKIN OVER THE BREAST RESEMBLES
AN ORANGE PEEL (PEAU D ORANGE)

NIPPLE IS RETRACTED

FNAC IS THE CHOICE OF INVESTIGATION

MASTECTOMY IS DONE

ANAND'S ATLAS OF PATHOLOGY

CARCINOMA OF BREAST

FINE NEEDLE ASPIRATION CYTOLOGY IS A LABORATORY METHOD FOR DIAGNOSIS OF MALIGNANCY

INVOLVES ASPIRATION OF CELLS FROM A MASS

FOLLOWED BY CYTOLOGICAL EXAMINATION OF THE SMEAR

DONE USUALLY IN PATIENTS NOT FIT FOR OPEN BIOPSY

CARCINOMA BREAST IS NOT COMMON IN WOMEN BELOW THE AGE OF 30 YEARS

CARCINOMA OF BREAST

FEATURES COMMON TO ALL INVASIVE CANCERS

- BREAST LUMP
- FIXITY TO CHEST WALL
- RETRACTION OR DIMPLING OF NIPPLE
- LYMPHOEDEMA
- PEAU D'ORANGE -THICKENING OF SKIN AROUND EXAGGERATED HAIR FOLLICLES

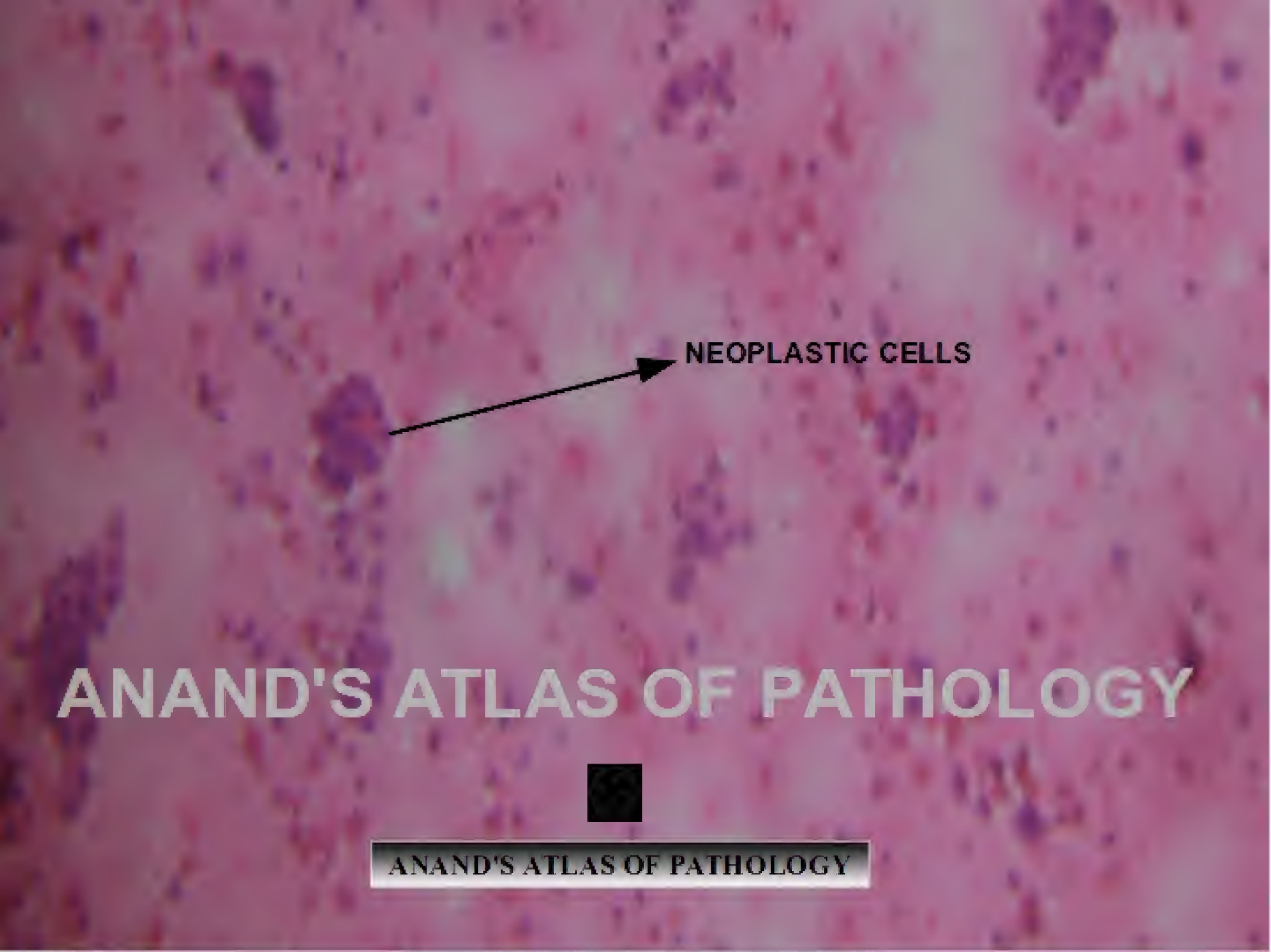
ASCITIC FLUID - SECONDARY DEPOSITS

ASCITES – COLLECTION OF FLUID IN THE GENERAL PERITONEAL CAVITY

THIS COLLECTION CAN BE SECONDARY TO LIVER DYSFUNCTION OR MAY BE DUE TO MALIGNANCY IN PELVIC ORGANS

THIS CASE PERTAINS TO MASS IN THE OVARY IN A WOMAN IN THE 7TH DECADE

THE ASPIRATED FLUID WAS HAEMORRHAGIC



ANAND'S ATLAS OF PATHOLOGY

ASCITIC FLUID – SECONDARY DEPOSITS

INCREASED FLUID IN INTERSTITIAL TISSUE SPACES IS TERMED AS **OEDEMA**

ACCUMULATION OF FLUID IN THE GENERAL PERITONEAL CAVITY IS TERMED AS HYDROPERITONEUM OR ASCITIS

ASCITIC FLUID ASPIRATION AND CYTOLOGICAL SMEAR PREPARATION IS A LABORATORY METHOD FOR DIAGNOSIS OF NEOPLASIA

PRIMARY IN THIS CASE - OVARIAN MALIGNANCY

ASCITIC FLUID – SECONDARY DEPOSITS

ASCITIC FLUID ASPIRATION AND CYTOLOGY IS DONE FOR DIAGNOSING PRIMARY SITE OF MALIGNANCY - FLUID IS USUALLY HAEMORRHAGIC

PROBABLE SITES OF MALIGNANCY - ENDOMETRIUM OF UTERUS, LUNGS, URINARY BLADDER, PROSTATE AND STOMACH

NEOPLASTIC CELLS ARE LESS COHESIVE THAN NORMAL CELLS HENCE THEY ARE SHED INTO BODY FLUIDS - EXFOLIATION

SHED CELLS ARE EVALUATED FOR FEATURES OF ANAPLASIA INDICATIVE OF THEIR ORIGIN OF CANCER

SECTION - 3

HAEMATOLOGY SLIDES

LIST OF COLOUR PLATES

IRON DEFICIENCY ANAEMIA

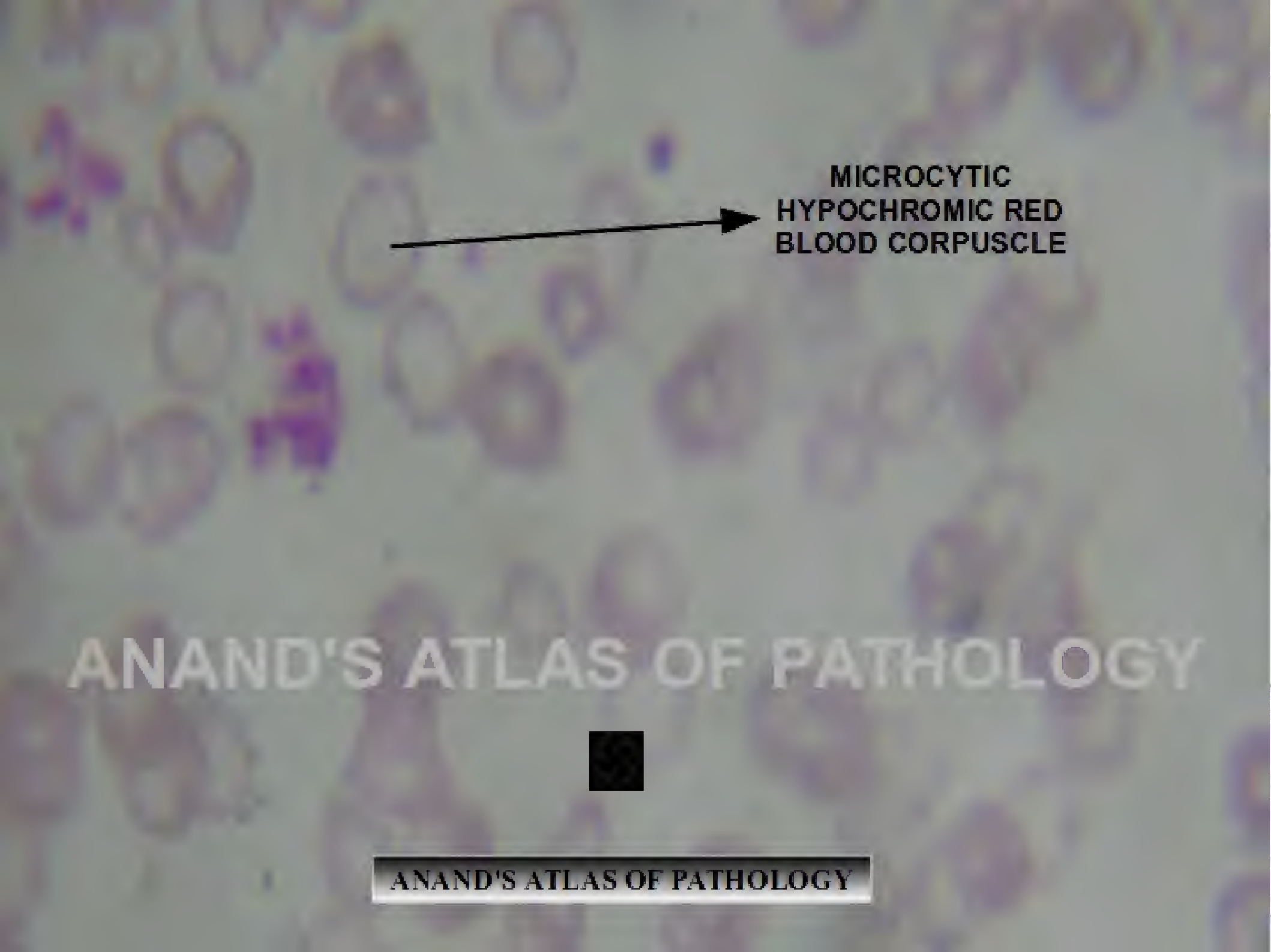
THERE IS SEVERE REDUCTION
IN HAEMOGLOBIN %

VERY COMMON IN WOMEN

CAN ALSO OCCUR IN WORM INFESTATION
AND MALIGNANCY

PREGNANCY IS A PROBABLE
PHYSIOLOGICAL CAUSE

PERIPHERAL BLOOD SMEAR IS
THE COMMONEST INVESTIGATION



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IRON DEFICIENCY ANAEMIA

- MOST COMMONEST FORM OF NUTRITIONAL DEFICIENCY
- MICROSCOPICALLY RBC'S ARE MICROCYTIC AND HYPOCHROMIC REFLECTING THE REDUCED MCV AND MCHC
- IRON DEFICIENCY ANAEMIA IS USUALLY ACCOMPANIED BY AN INCREASE IN THE PLATELET COUNT
- PICTURE WILL ALSO SHOW NORMOBLASTIC HYPERPLASIA
- HAEMOSIDERIN IN CYTOPLASM FORM LARGE CLUSTERS

NEUTROPHILIA

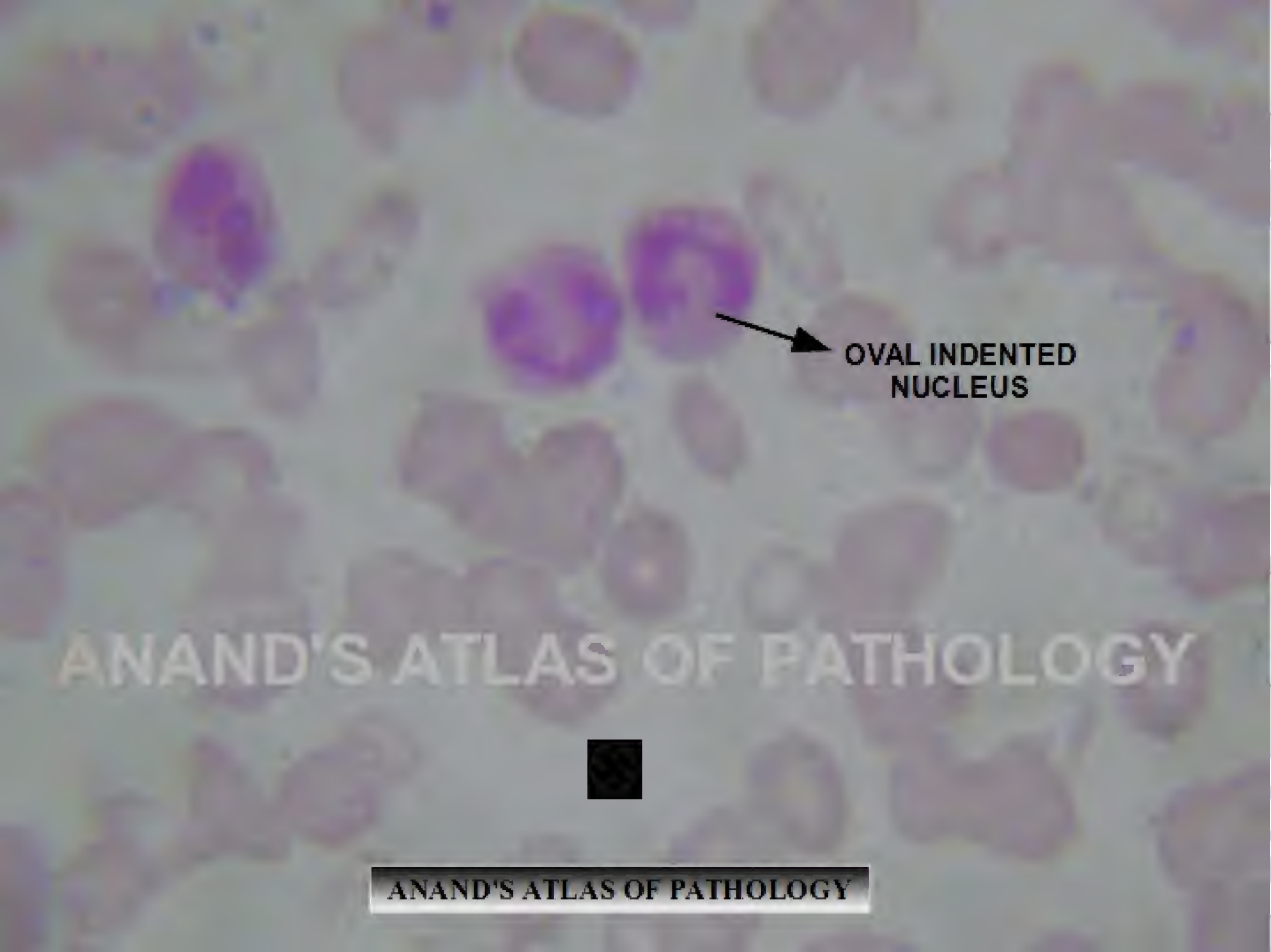
PATIENT USUALLY PRESENTS WITH FEVER AND MALAISE

COUGH WITH EXPECTORATION IS PRESENT

SPUTUM USUALLY RESEMBLES PUS

LUNG OPACITY IS SEEN IN AN XRAY

PERIPHERAL BLOOD SMEAR IS TAKEN



NEUTROPHILIA

NEUTROPHILIA IS RELATIVELY A SELECTIVE INCREASE IN POLYMORPHONUCLEAR CELLS INDUCED BY BACTERIAL INFECTIONS

IT IS BASICALLY A NON NEOPLASTIC DISORDER OF WBC'S

MICROCOPICALLY THERE ARE A LARGE NUMBER OF ATYPICAL LYMPHOCYTES

LYMPHOCYTES ARE CHARACTERISED BY ABUNDANT CYTOPLASM CONTAINING MULTIPLE CLEAR VACUOLATIONS AND AN OVAL INDENTED OR FOLDED NUCLEUS

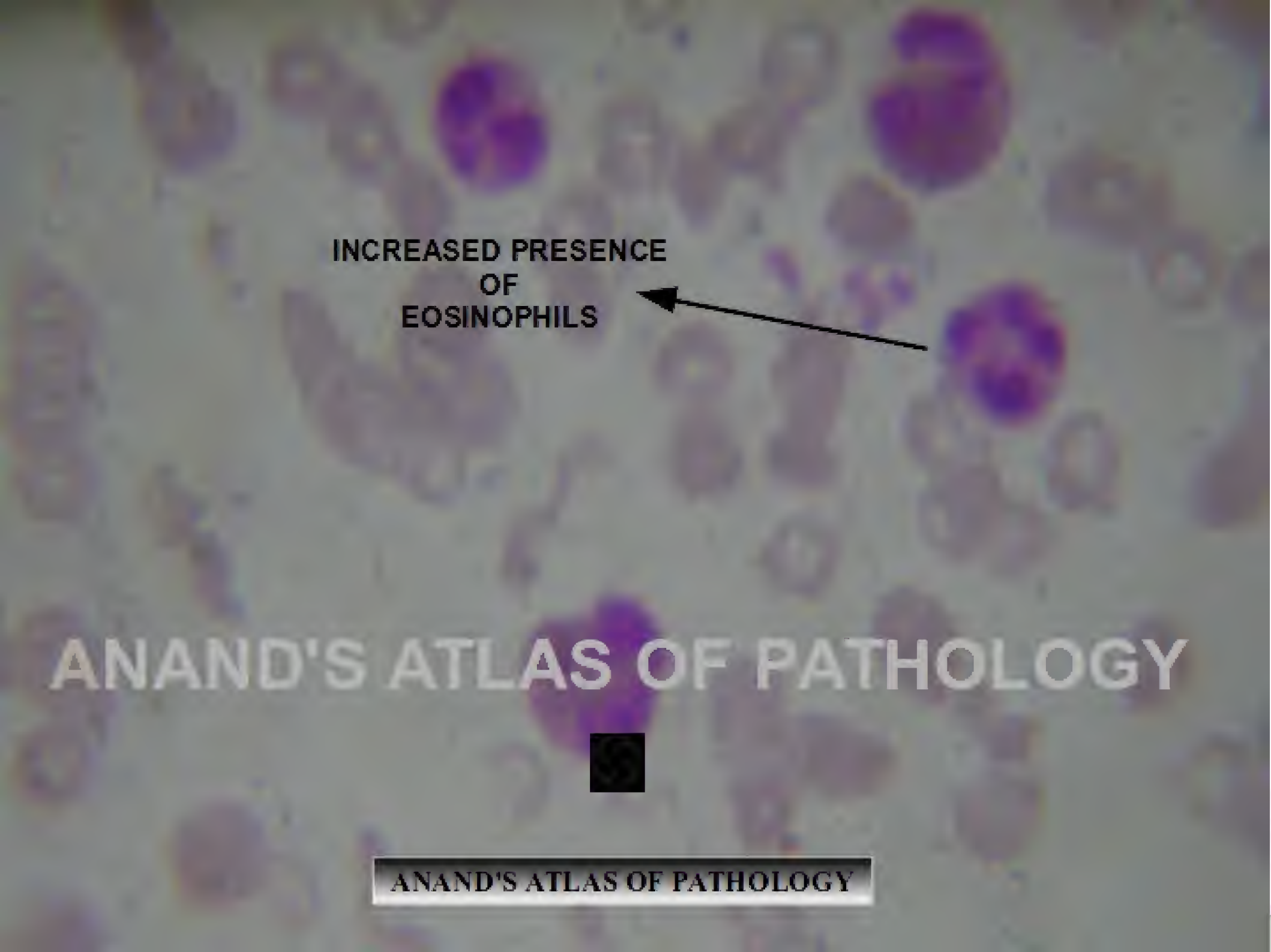
EOSINOPHILIA

OCCURS IN YOUNG INDIVIDUALS

PATIENTS PRESENT WITH FEVER AND ASSOCIATED RIGORS

THERE IS UNILATERAL PITTING OEDEMA IN THE LOWER LIMB

PERIPHERAL BLOOD SMEAR IS DONE



ANAND'S ATLAS OF PATHOLOGY

EOSINOPHILIA

IT IS AN INCREASED COUNT OF EOSINOPHILS IN BLOOD DUE TO PARASITIC INFECTIONS AND ALLERGIC RESPONSES

THEY MIGRATE INTO TISSUES DISEASED BY PARASITES

THE EOSINOPHILS MIGRATE TOWARDS INFECTED TISSUE BECAUSE OF EOSINOPHIL CHEMOTACTIC FACTOR SECRETED BY MAST CELLS AND BASOPHILS

EOSINOPHILS ALSO DETOXIFY INFLAMMATION INDUCING SUBSTANCES SECRETED BY THE MAST CELLS AND BASOPHILS

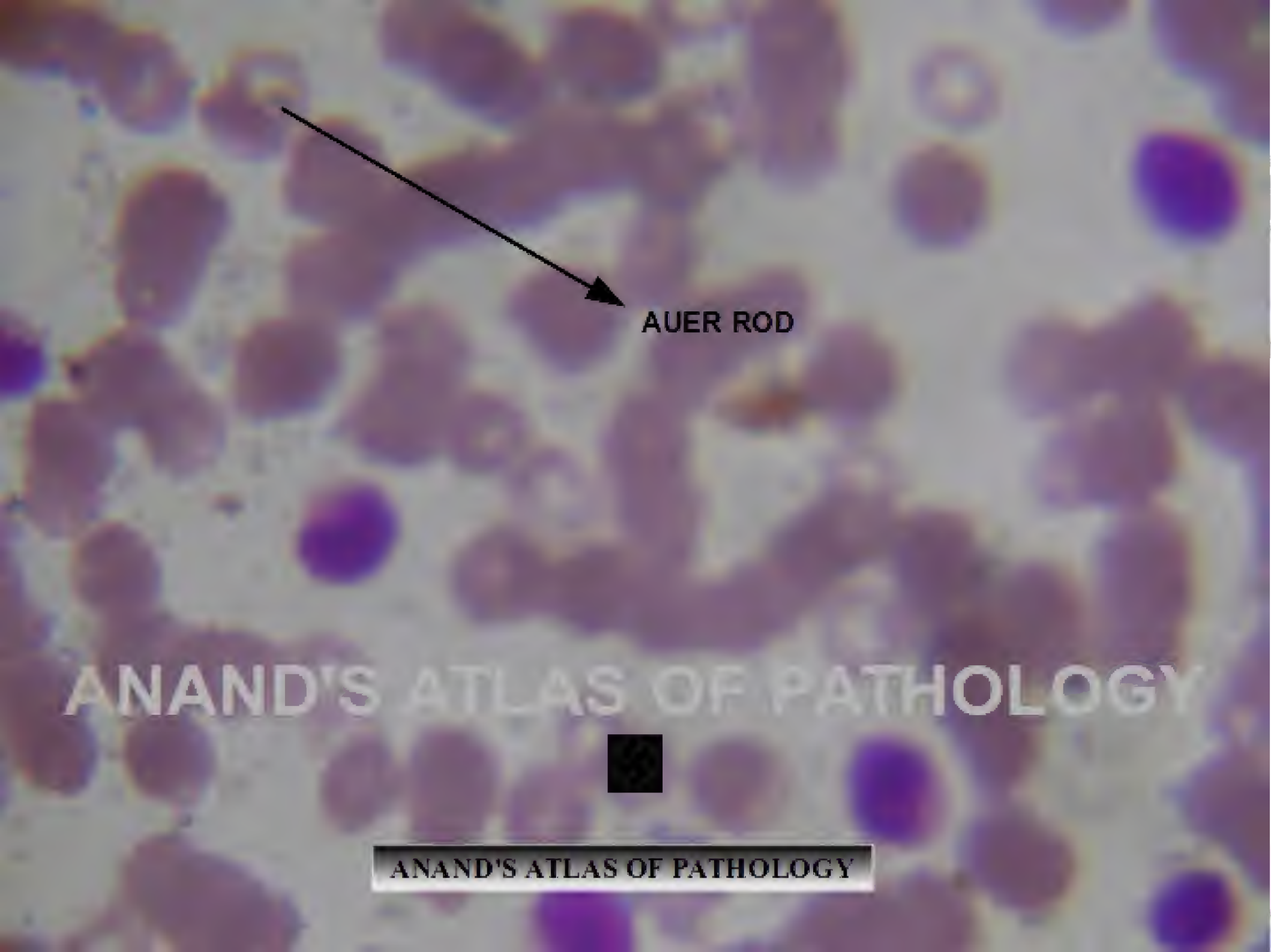
ACUTE MYELOID LEUKEMIA

AFFECTS YOUNG INDIVIDUALS

PRESENTS WITH HISTORY OF FEVER DURATION OF THREE MONTHS AND ABOVE

THERE IS PRESENCE OF SEVERE ANEMIA

PERIPHERAL BLOOD SMEAR IS DONE



ANAND'S ATLAS OF PATHOLOGY

ACUTE MYELOID LEUKEMIA

MYELOBLASTS CAN BE DIFFERENTIATED FROM LYMPHOBLASTS BY GIEMSA STAIN

BLAST CELLS HAVE DELICATE NUCLEAR CHROMATIN

THREE TO FIVE NUCLEOLI ARE SEEN

FINE AZUROPHILIC GRANULES IN CYTOPLASM

DISTINCTIVE RED STAINING ROD LIKE STRUCTURES CALLED AS **AUER RODS** ARE PRESENT

AUER RODS ARE FOUND ONLY IN NEOPLASTIC MYELOBLASTS

ACUTE LYMPHOCYTIC LEUKEMIA

SEEN IN ADOLOSCENTS

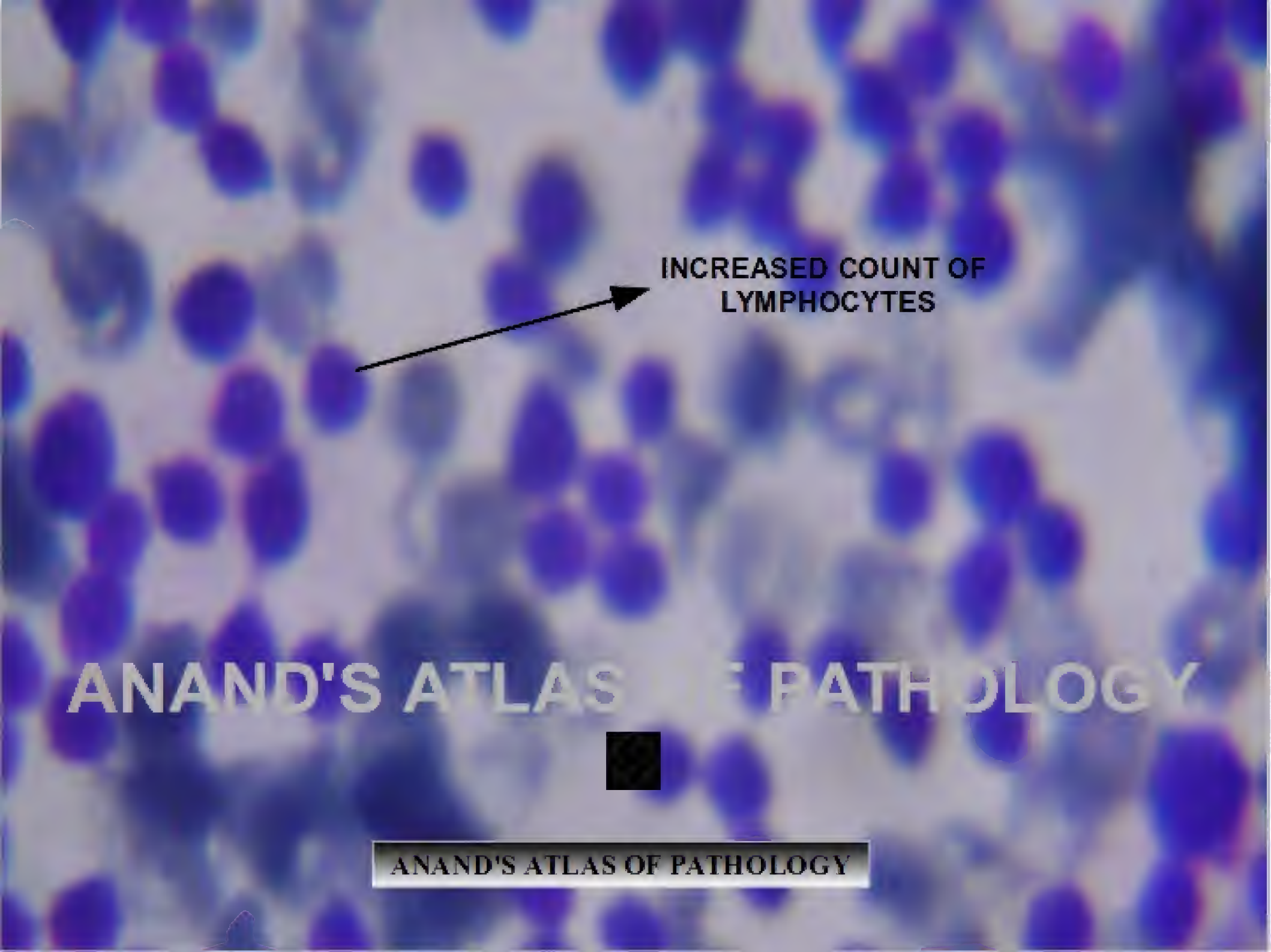
PRESENTS WITH GENERALISED LYMPHADENOPATHY

SPLENOMEGALY

HEPATOMEGALY

LOSS OF WEIGHT

PERIPHERAL BLOOD SMEAR IS DONE



ANAND'S ATLAS OF PATHOLOGY

ACUTE LYMPHOCYTIC LEUKEMIA

LYMPHOCYTIC LEUKEMIAS ARE CAUSED BY INCREASED PRODUCTION OF LYMPHOID CELLS

THE NUCLEI ARE COARSE AND HAVE CLUMPED CHROMATIN

ONLY ONE OR TWO NUCLEOLI WILL BE PRESENT

CYTOPLASM CONTAINS LARGE AGGREGATES OF PAS POSITIVE MATERIAL

TO DIFFERENTIATE FROM AML – MYELOBLASTS ARE PEROXIDASE POSITIVE

CHRONIC MYELOID LEUKEMIA

USUALLY OCCURS IN THE
5TH DECADE

PATIENT PRESENTS WITH FEVER AND
MODERATE WEIGHT LOSS

MASSIVE SPLENOMEGALY

DRAGGING PAIN IN THE LEFT SIDE
OF ABDOMEN

PERIPHERAL BLOOD SMEAR IS DONE

ANAND'S ATLAS OF PATHOLOGY

CHRONIC MYELOID LEUKEMIA

PERIPHERAL SMEAR WILL SHOW A LARGE NUMBER OF MATURE NEUTROPHILS

SOME METAMYELOCYTES AND MYELOCYTES

INCREASED EOSINOPHILS, BASOPHILS AND NUCLEATED RED CELLS WILL BE SEEN

THERE WILL A DRAMATIC INCREASE IN THE NUMBER OF MATURE CIRCULATING MYELOBLASTS

HISTOLOGICALLY THE PICTURE IS THAT OF NORMOCYTIC NORMOCHROMIC ANAEMIA

CHRONIC LYMPHOCYTIC LEUKEMIA

OCCURS IN THE 6TH DECADE

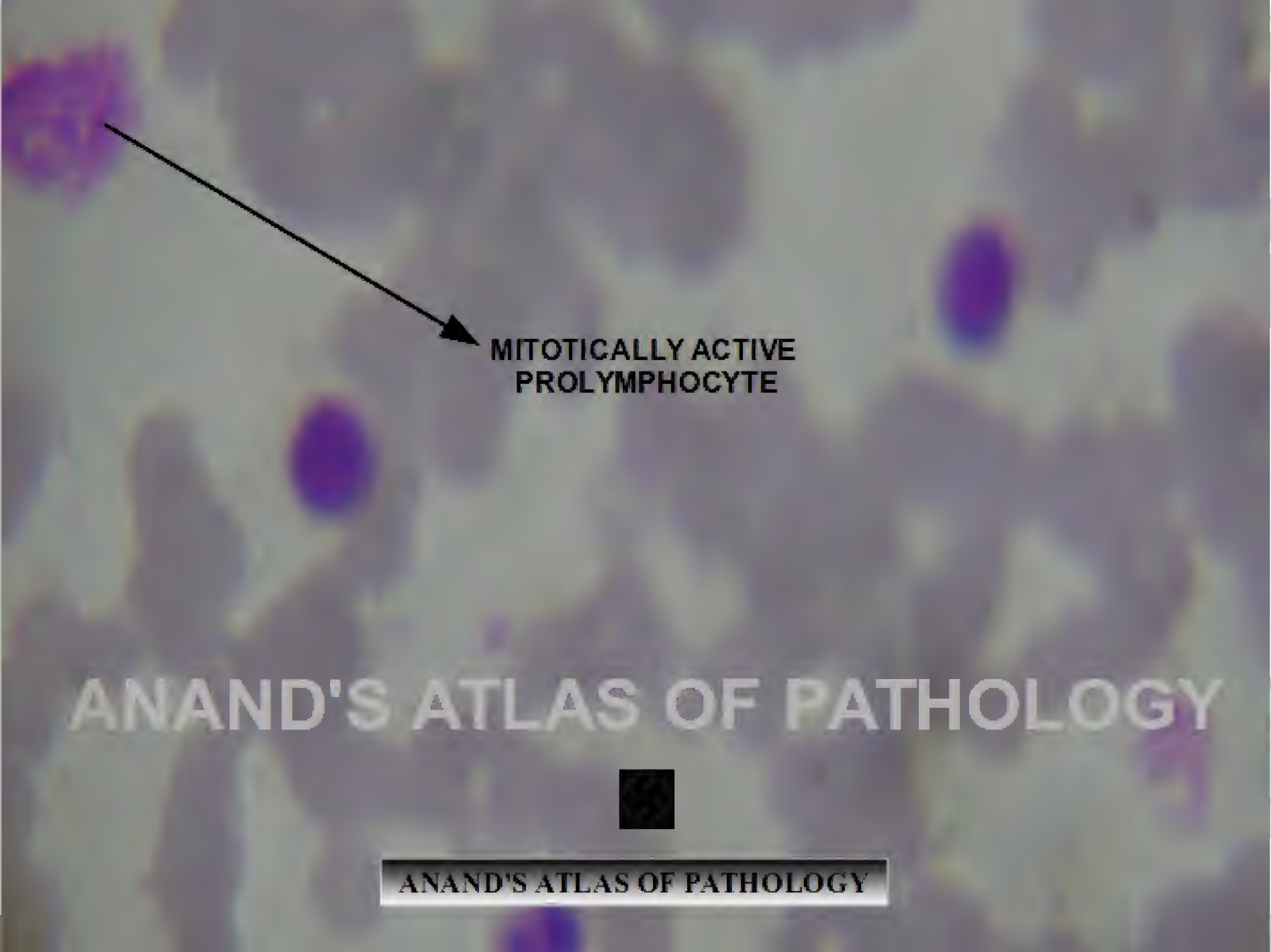
PATIENT PRESENTS WITH

FEVER, FATIGUE AND WEIGHT LOSS

GENERALISED LYMPHADENOPATHY IS PRESENT

DIFFERENTIAL COUNT SHOWS
ABNORMALLY HIGH LEUKOCYTOSIS

PERIPHERAL BLOOD SMEAR IS DONE


MITOTICALLY ACTIVE
PROLYMPHOCYTE
ANAND'S ATLAS OF PATHOLOGY
ANAND'S ATLAS OF PATHOLOGY

CHRONIC LYMPHOCYTIC LEUKEMIA

MILD TO GRADUALLY INCREASING ANAEMIA IS SEEN

THERE IS A MODERATE AMOUNT OF LEUKOCYTOSIS

95% OF THE CELLS ARE LYMPHOCYTES PREDOMINANTLY OF SMALL CELL TYPE

THE FOCI OF MITOTICALLY ACTIVE PROLYMPHOCYTES ARE CALLED AS PROLIFERATION CENTRES WHICH IS A THE DIAGNOSTIC FEATURE OF CHRONIC LYMPHOCYTIC LEUKEMIA

MULTIPLE MYELOMA

OCCURS IN THE 6TH DECADE

PREPONDERANT IN MALES

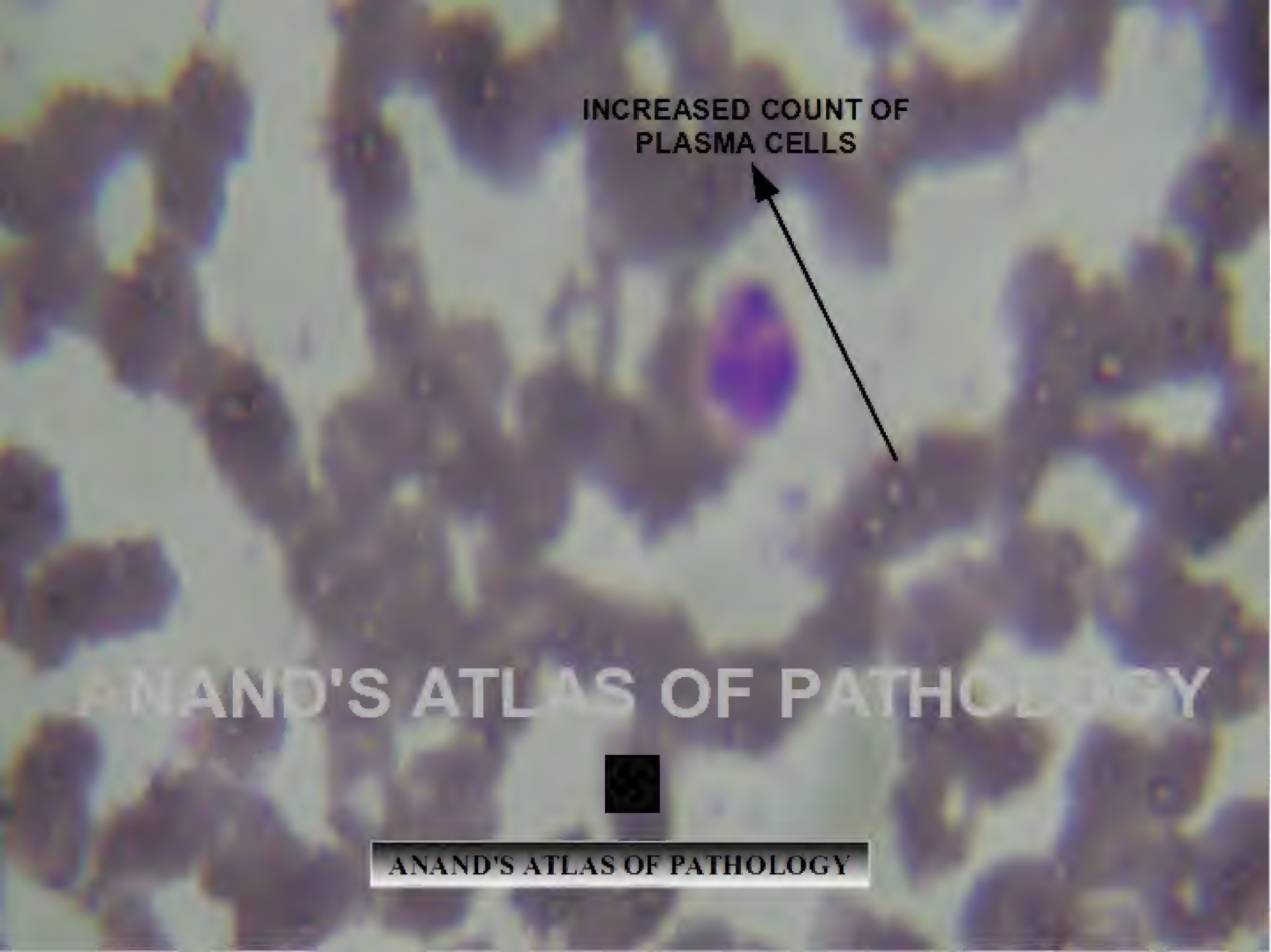
PATIENTS PRESENT WITH LOW BACK ACHE

ABNORMALLY ELEVATED ESR COUNT IS SEEN

PROTIENURIA IS PRESENT

XRAY OF SKULL REVEALS
PUNCHED OUT LESIONS

PERIPHERAL SMEAR IS DONE



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MULTIPLE MYELOMA

MULTIPLE MYELOMA CAUSES DESTRUCTIVE BONE LESIONS

MICROSCOPICALLY THERE IS AN INCREASE OF PLASMA CELLS

THE NEOPLASTIC PLASMA CELLS RESEMBLE NORMAL MATURE PLASMA CELLS

THESE CELLS SHOW ABNORMAL FEATURES SUCH AS PROMINENT NUCLEOLI, ABNORMAL CYTOPLASMIC INCLUSIONS WHICH CONTAIN IMMUNOGLOBULIN

SECTION - 4

HISTOPATHOLOGY
GROSS SPECIMENS

LIST OF GROSS SPECIMENS

ACUTE APPENDICITIS

MUCINOUS CYSTADENOMA OF OVARY

DERMOID CYST

LEIOMYOMA

RENAL CELL CARCINOMA

OSTEOSARCOMA

LIST OF GROSS SPECIMENS

OSTEOCLASTOMA
TUBERCULOSIS OF LUNG
INTESTINAL POLYPS
CIRRHOSIS OF LIVER
SECONDARIES OF LIVER
CARCINOMA OF BREAST

LIST OF GROSS SPECIMENS

MULTINODULAR GOITRE

SQUAMOUS CELL CARCINOMA OF FOOT

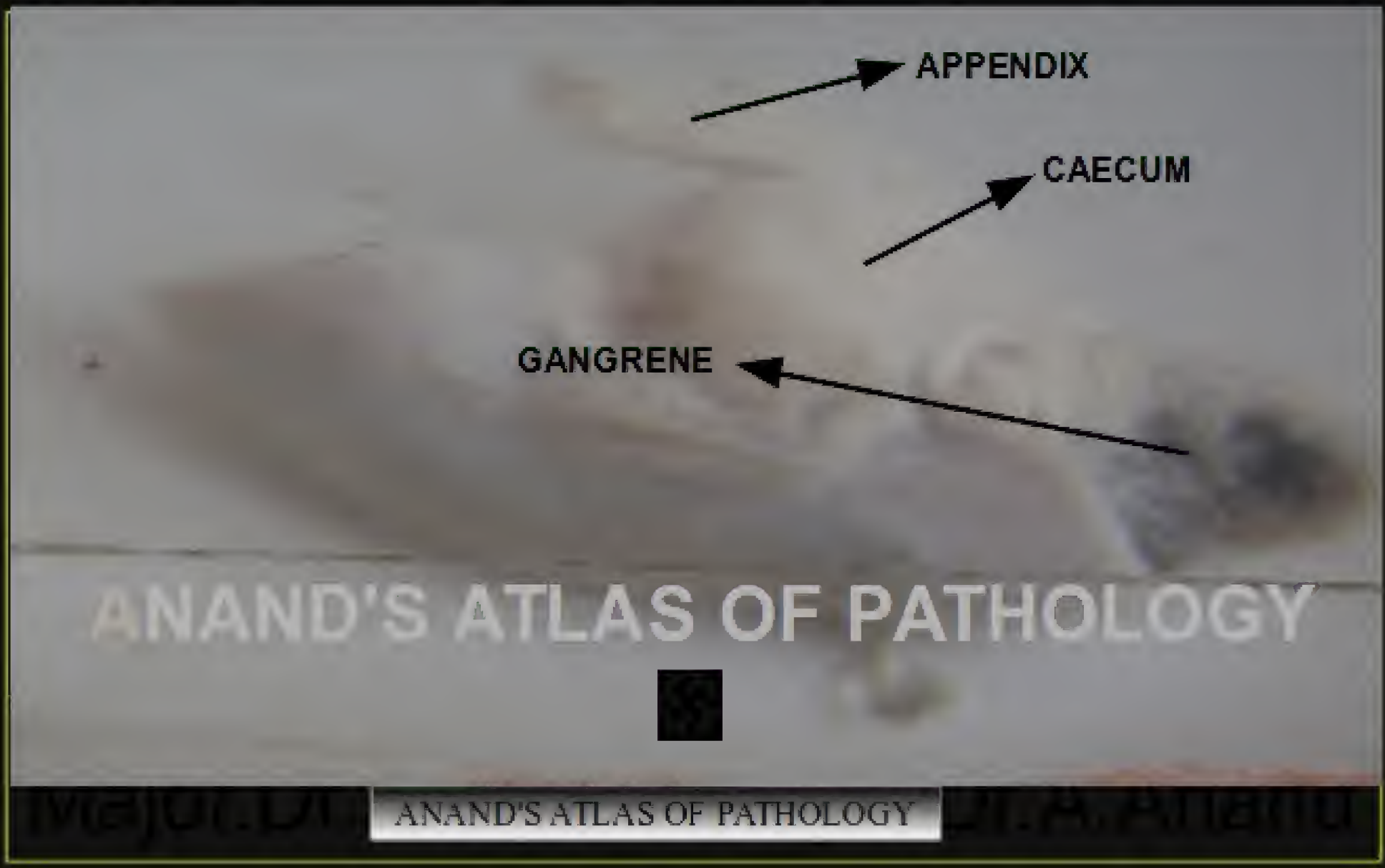
CARCINOMA OF STOMACH

CHOLELITHIASIS

RENAL CALCULII

TRICHOBEZOAR

ACUTE APPENDICITIS



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ACUTE APPENDICITIS

THE ORGAN APPEARS TURGID AND DUSKY RED DUE TO INFLAMMATION AND HAEMORRHAGES IN THE MUCOUS MEMBRANE

IN ADVANCED CASES IT MIGHT APPEAR DARKISH GREEN TO BLACK BECAUSE OF GANGRENOUS CHANGE

MUCINOUS CYSTADENOMA OF OVARY

MUCINOUS CYSTADENOMA OF OVARY

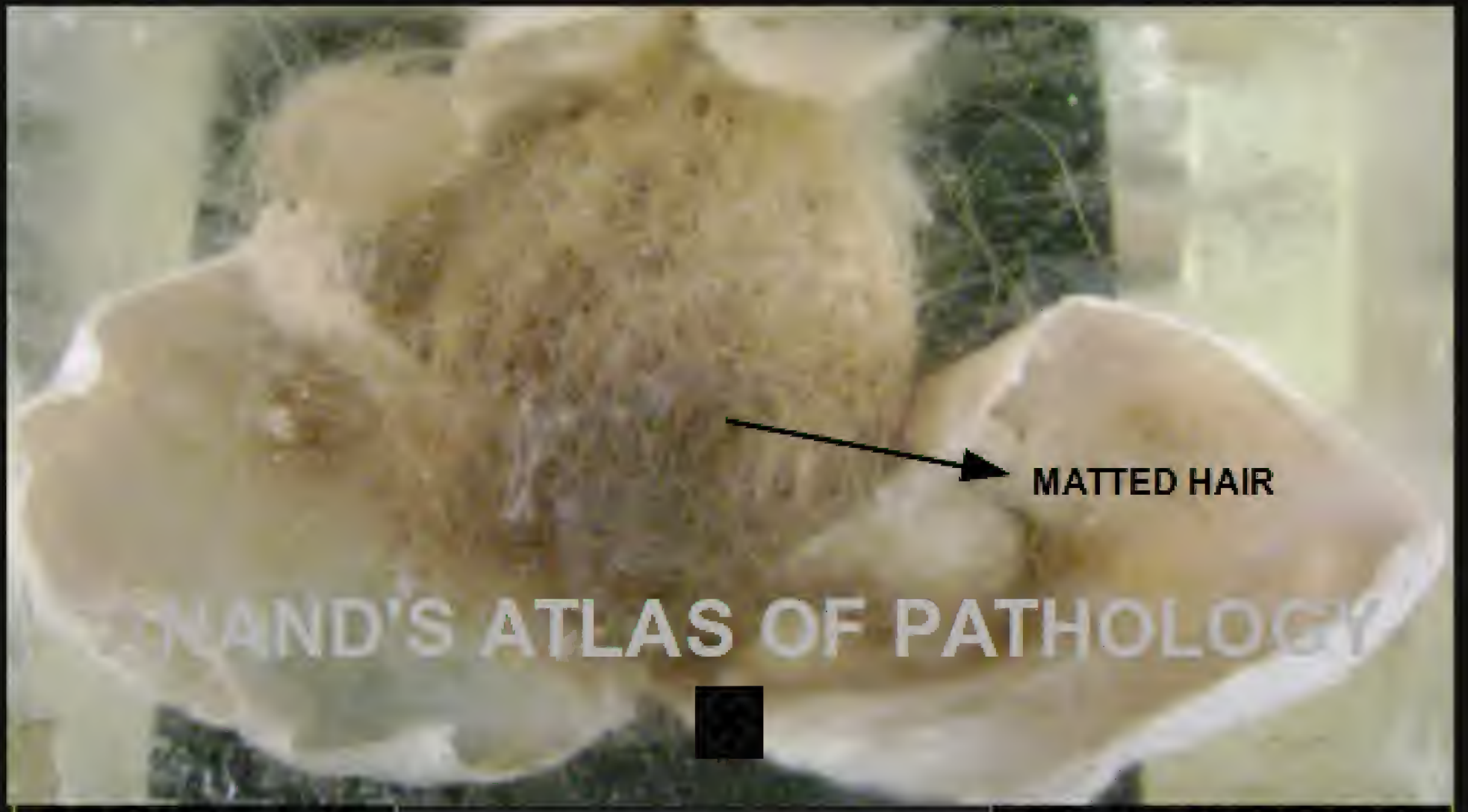
USUALLY A BENIGN TUMOUR

RARELY UNDERGOES MALIGNANT CHANGE

CYST CAVITIES ARE SEEN

DELICATE PAPILLARY TUMOUR GROWTHS CAN BE SEEN IN THE PERIPHERY

DERMOID CYST



DERMOID CYST

AFFECTED ORGAN IS OVARY

THESE NEOPLASMS ARE CAUSED BY ECTODERMAL DIFFERENTIATION OF TOTIPOTENT GERM CELLS

MATTED HAIR BEARING EPITHELIAL LINING IS SEEN

SOMETIMES IT CAN HAVE NODULAR PROJECTIONS FROM WHICH TEETH CAN PROTRUDE

LEIOMYOMA OF UTERUS

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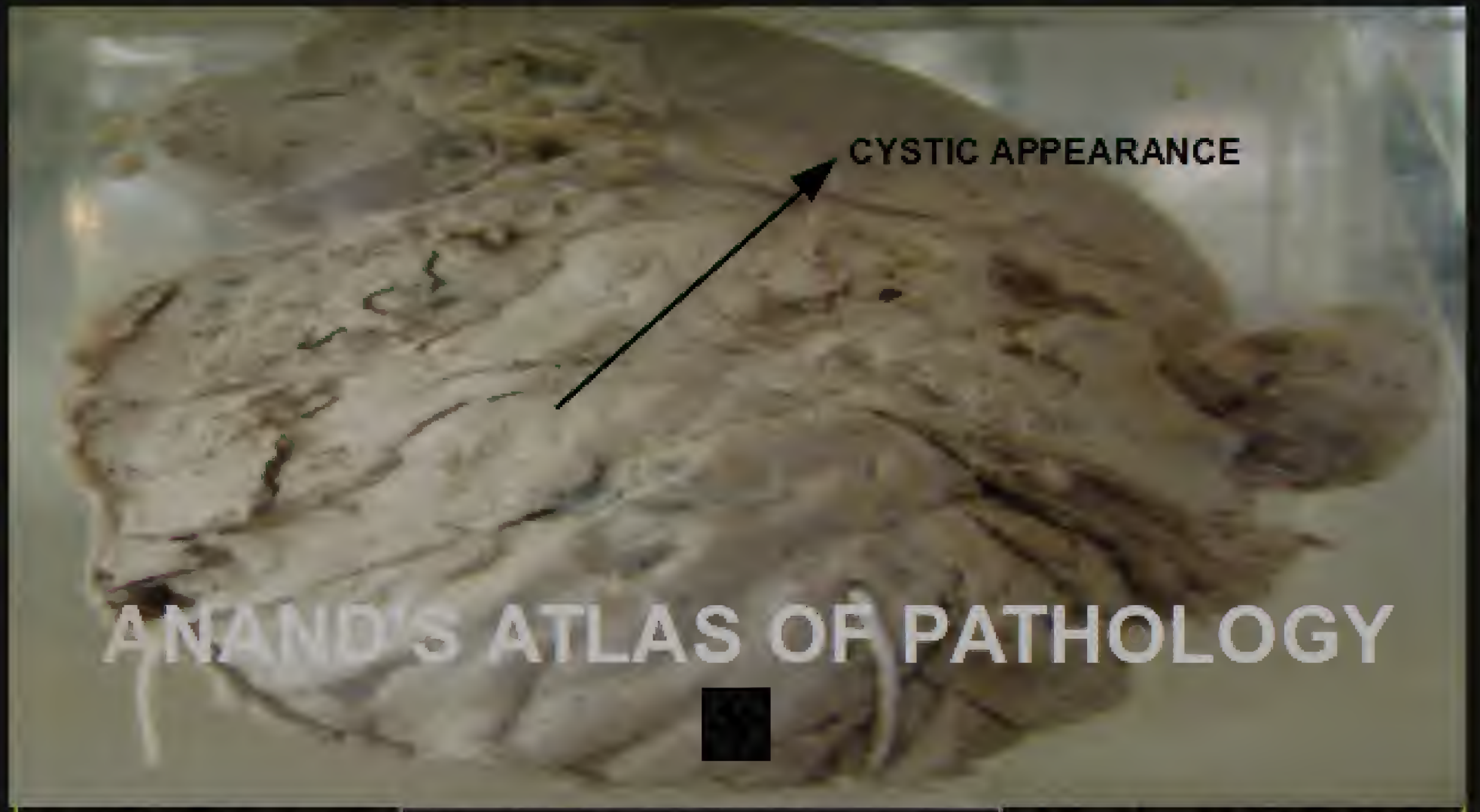
LEIOMYOMA OF UTERUS

TUMOUR IS A SHARPLY CIRCUMSCRIBED FIRM GRAY MASS

PRESENTS A CHARACTERISTIC WHORLED CUT SURFACE

RENAL CELL CARCINOMA



RENAL CELL CARCINOMA

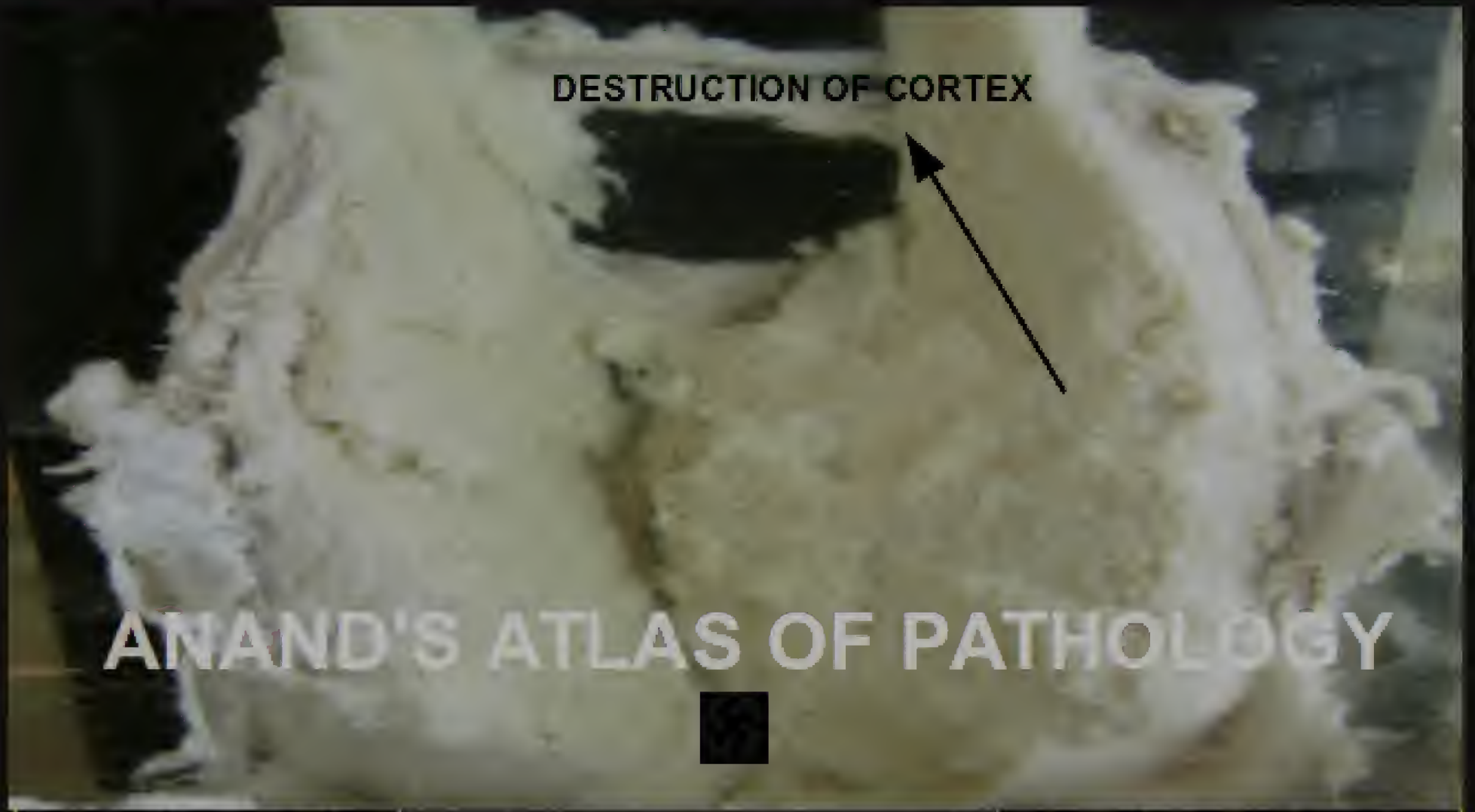
KIDNEY IS USUALLY SOLITARY AND LARGE

TUMOUR GROWTH IS USUALLY CONFINED TO THE CORTEX

PROMINENT AREAS OF CYSTIC SOFTENING OR HAEMORRHAGE ARE SEEN

THE MARGINS OF THE TUMOUR ARE WELL DEFINED

OSTEOSARCOMA

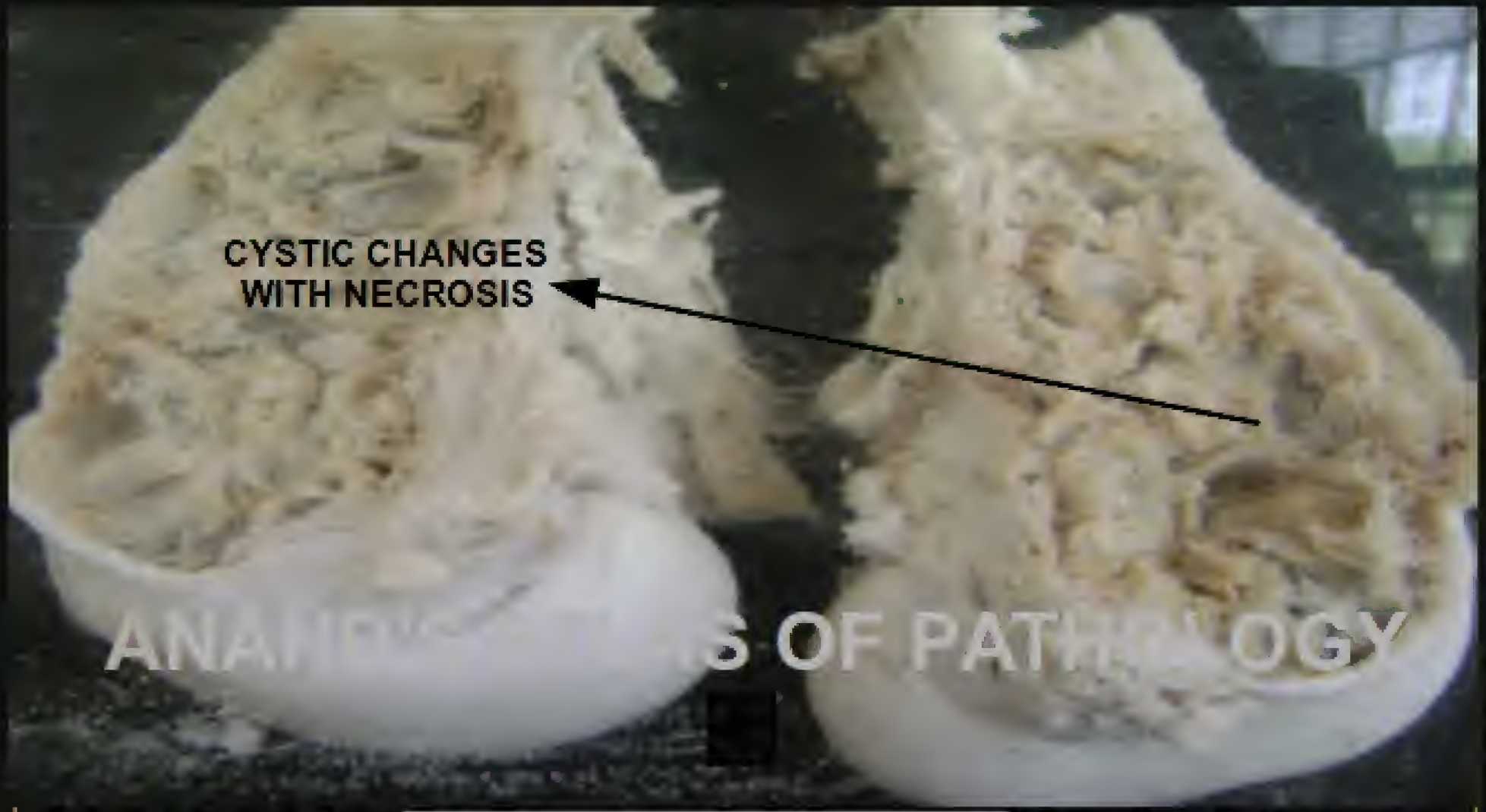


OSTEOSARCOMA

IT IS A LARGE ILL DEFINED LESION IN THE METAPHYSEAL REGION OF THE AFFECTED BONE

TUMOUR HAS DESTROYED THE CORTEX AND INVADED INTO THE MARROW CAVITY AND OUTWARD INTO ADJACENT SOFT TISSUES

OSTEOCLASTOMA



OSTEOCLASTOMA

USUALLY ENDS OF LONG BONE ARE AFFECTED

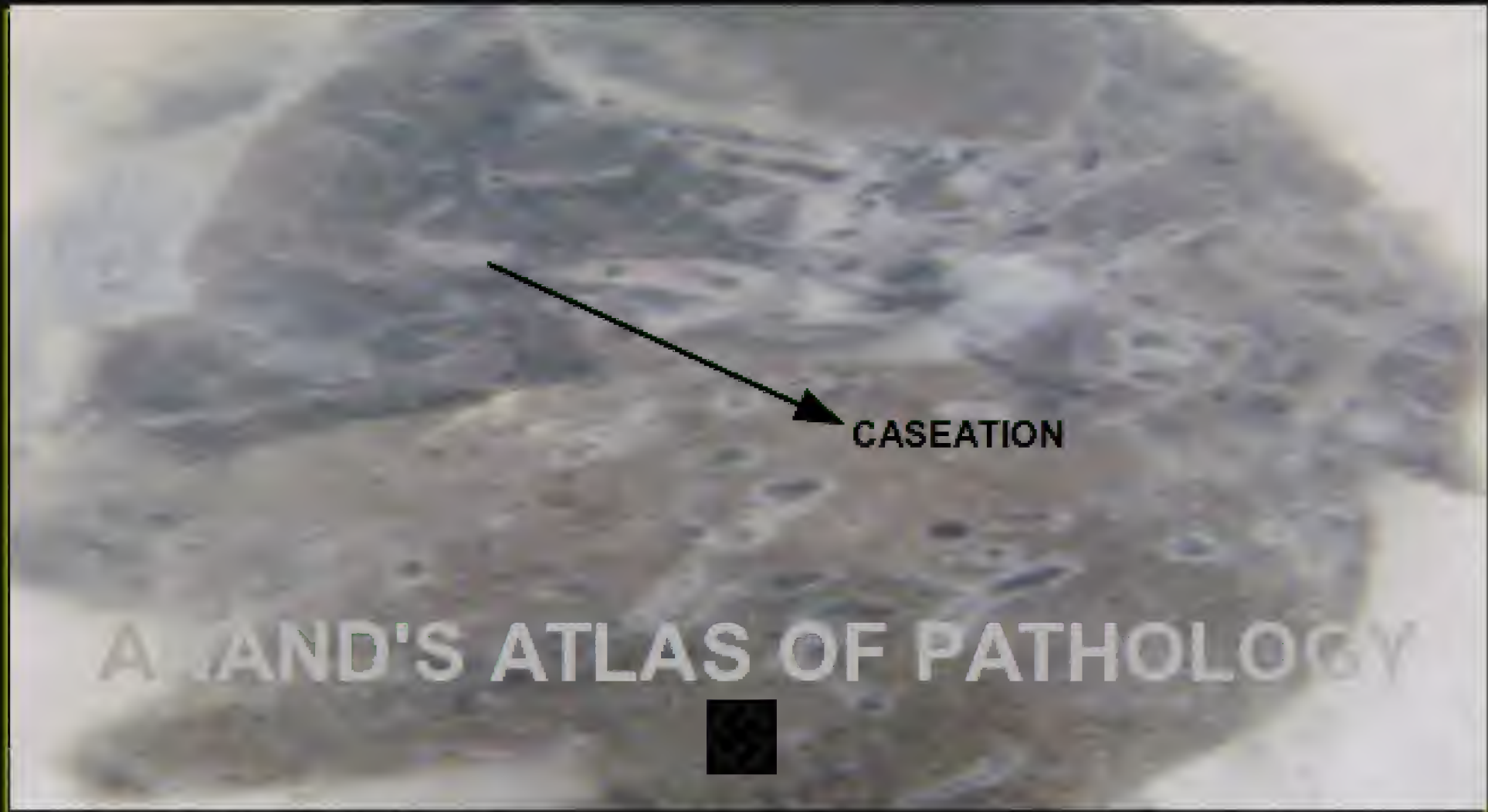
TUMOUR IS ALWAYS SOLITARY

TUMOUR ERODES INTO THE CORTEX AND MAY EXTEND OUTSIDE THROUGH THE OVERLYING PERIOSTEUM

PRESENTS A DARK BROWN APPEARANCE DUE TO ABUNDANT VASCULARITY

AREAS OF NECROSIS AND CYSTIC CHANGES ARE SEEN

TUBERCULOSIS OF LUNG

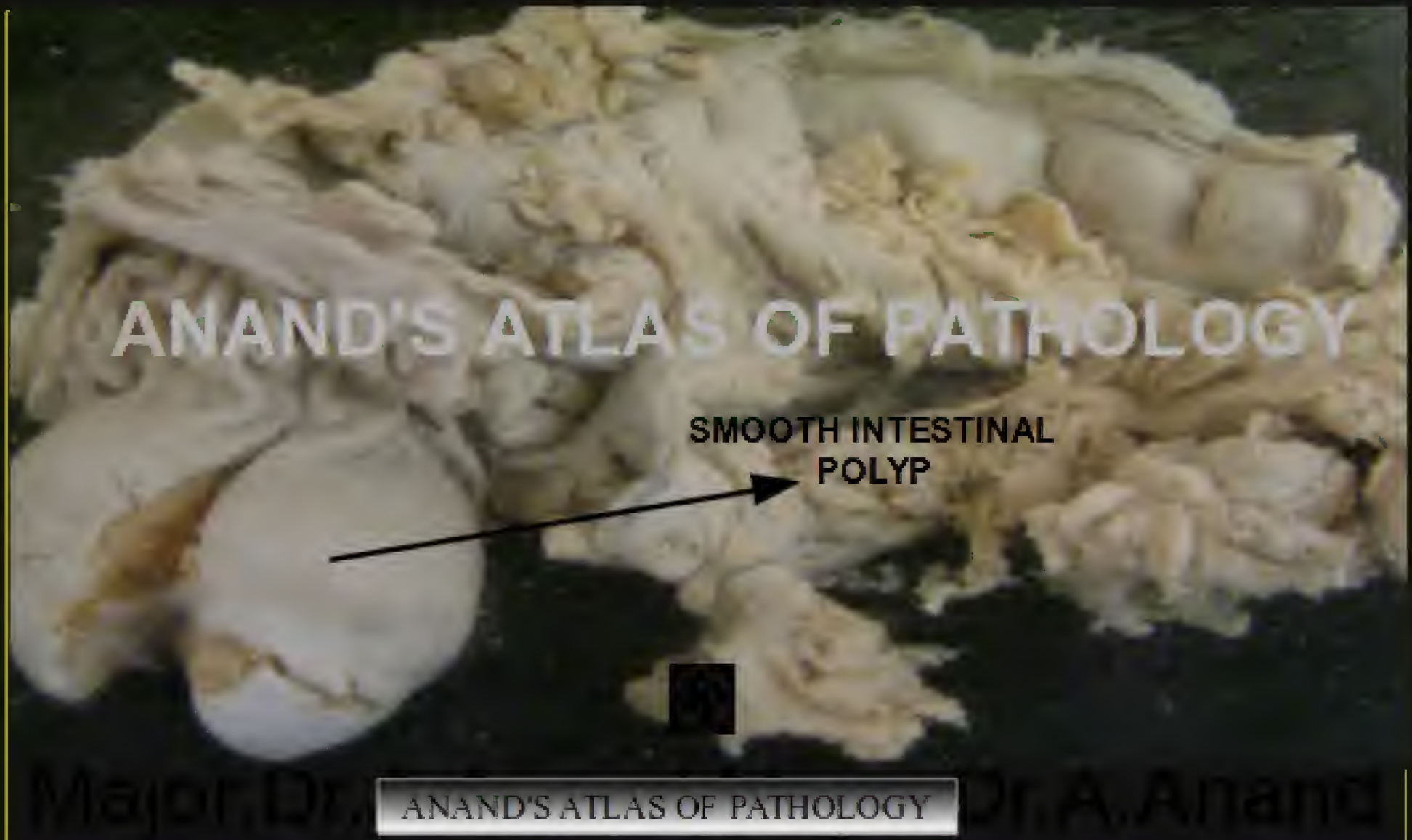


TUBERCULOSIS OF LUNG

LUNGS ARE RIDDLED WITH GRAY WHITE AREAS OF CASEATION

MULTIPLE AREAS OF SOFTENING AND CAVITATION ARE SEEN

INTESTINAL POLYPS



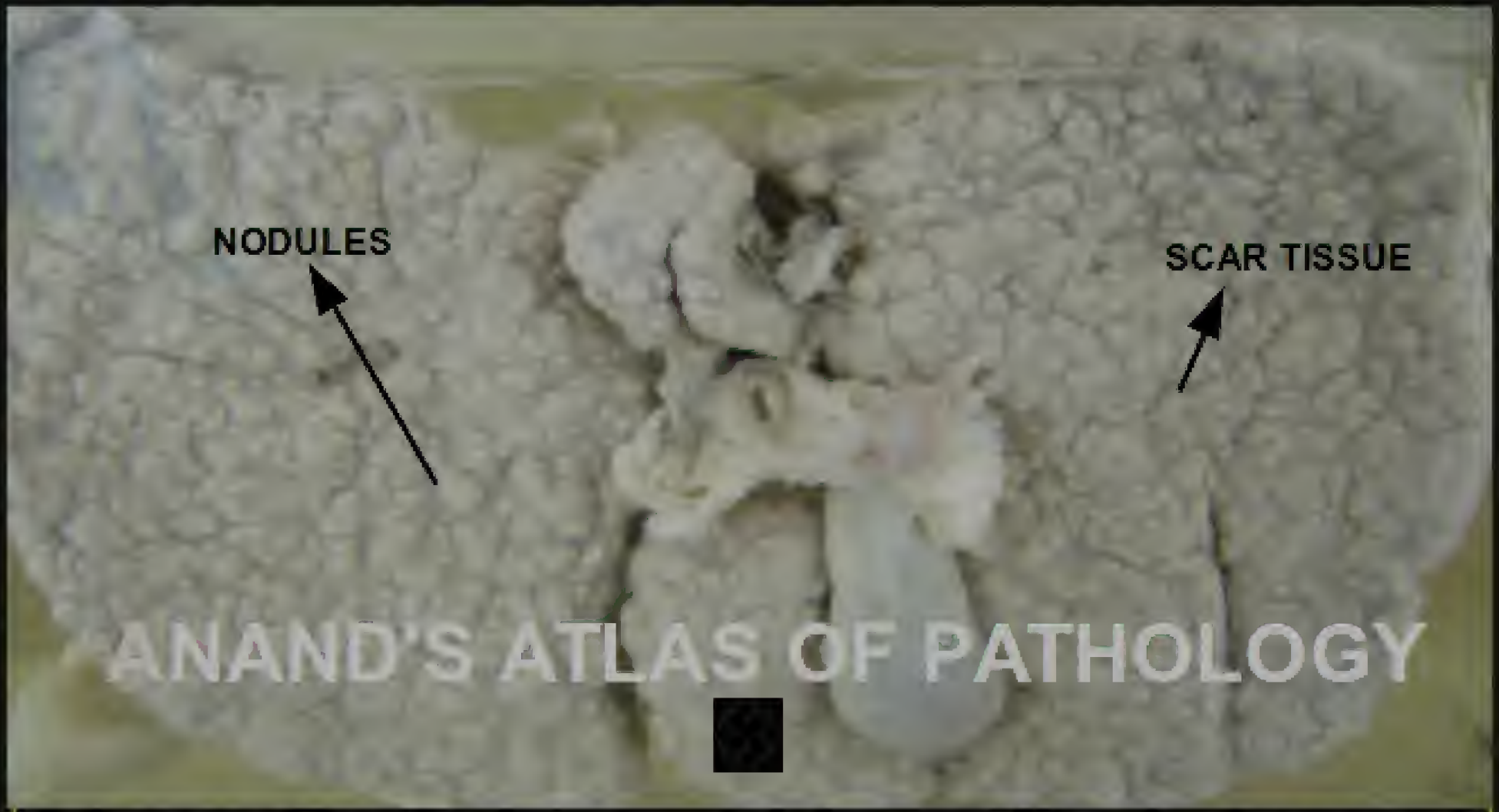
INTESTINAL POLYPS

MULTIPLE HEMISPHERICAL SMOOTH PROTRUSIONS ARE SEEN ON THE MUCOSA

THEY ARE NIPPLE LIKE

USUALLY AFFECTS THE RECTOSIGMOID JUNCTION

CIRRHOSIS OF LIVER



CIRRHOSIS OF LIVER

SPECIMEN OF LIVER SHOWING IRREGULARLY SIZED NODULES PUNCTUATING THE SURFACE OF THE LIVER

THE NODULES ARE SEPARATED BY SCAR TISSUE

SECONDARIES - LIVER

SECONDARIES - LIVER

WELL ROUNDED GROWTHS OF VARYING SIZES SEEN ON THE SURFACE OF THE LIVER

POSSIBLE PRIMARY SITES OF MALIGNANCY IS BY HAEMATOGENOUS ROUTE FROM ABDOMINAL ORGANS AS ALL PORTAL BLOOD IS DRAINED INTO THE LIVER

COMMONEST SITES OF METASTATIC SECONDARIES INTO THE LIVER ARE FROM COLON, LUNGS AND BREAST

CARCINOMA OF BREAST

CARCINOMA OF BREAST

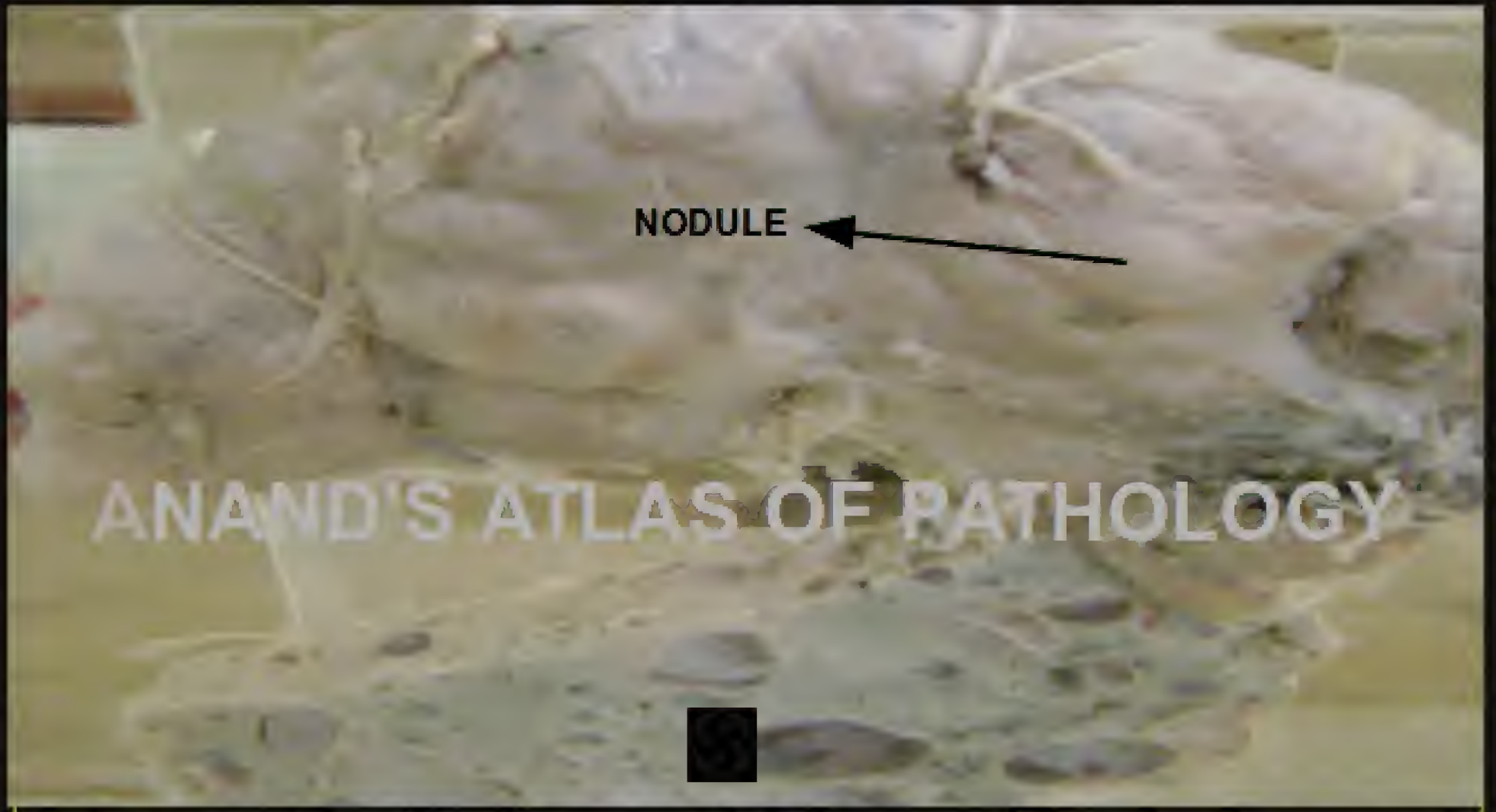
DUE TO DESMOPLASTIC RESPONSE, NORMAL BREAST FAT IS REPLACED AND FORMS A HARD PALPABLE MASS

DIMPLING OF SKIN IS SEEN

RETRACTION OF NIPPLE IS SEEN

FIXITY TO CHEST WALL IS SEEN IN INVASIVE CARCINOMA

MULTINODULAR GOITRE



MULTINODULAR GOITRE

THYROID GLAND IS IRREGULARLY ENLARGED

MULTIPLE IRREGULARLY PLACED NODULES OF VARYING SIZES AND SHAPE ARE SEEN

THE GLAND APPEARS COARSE AND AREAS OF FIBROSIS AND CYSTIC CHANGES ARE SEEN

SQUAMOUS CELL CARCINOMA OF FOOT

SQUAMOUS CELL CARCINOMA OF FOOT

ARISES COMMONLY FROM SUNLIGHT EXPOSED SURFACES

FOOT IS A COMMON SITE

OLD BURNS SCAR IS A PREDISPOSING FACTOR

LESIONS ARE NODULAR, THE GROWTH IS LIKE THAT OF A CAULIFLOWER

CARCINOMA OF STOMACH

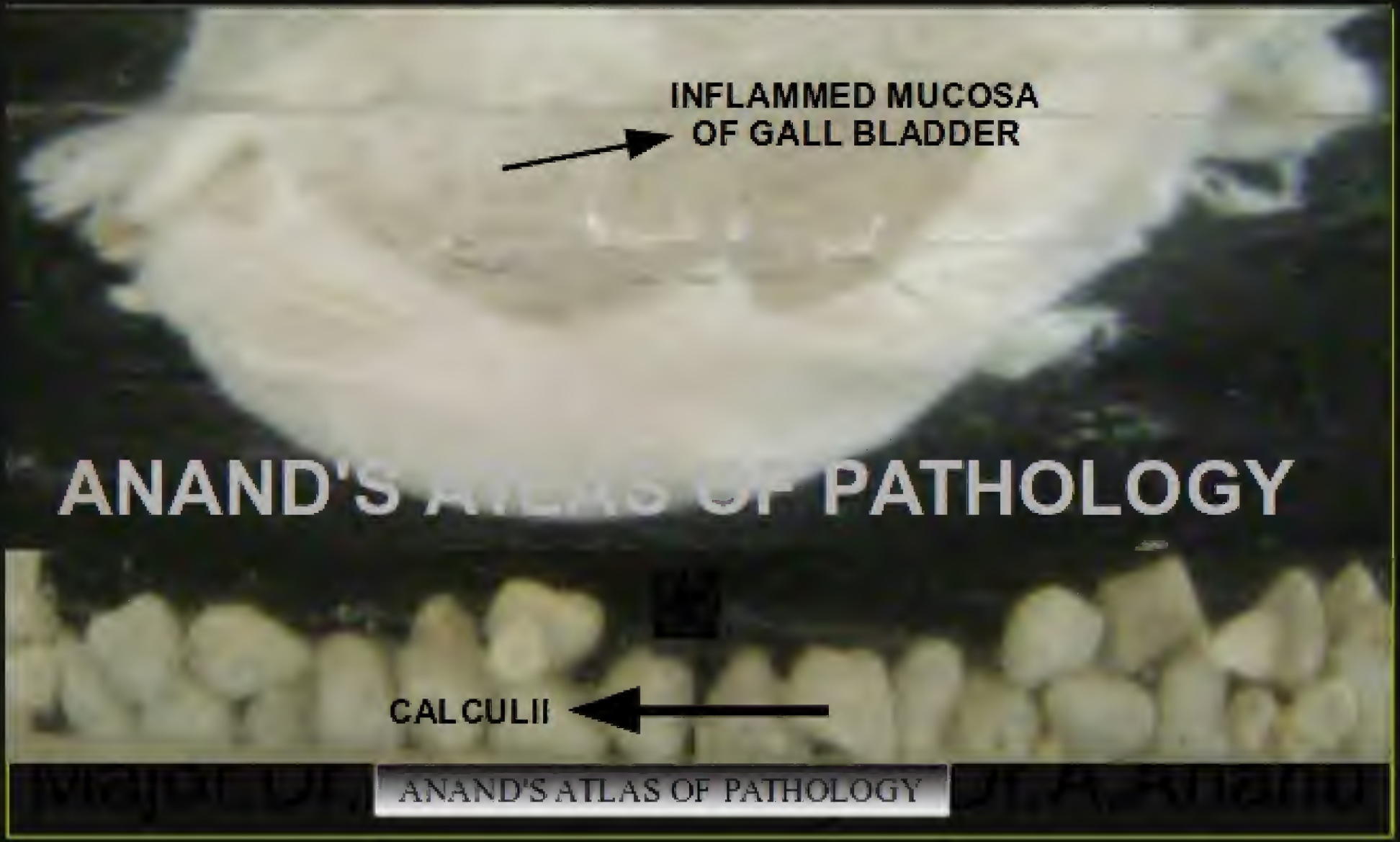
CARCINOMA OF STOMACH

PYLORUS AND ANTRUM ARE THE COMMONLY AFFECTED SITES

THERE IS PROTRUSION OF TUMOUR MASS INTO THE LUMEN

IN EXCAVATED TYPE, A SHALLOW OR DEEPLY EROSIVE CRATER IS SEEN

CHOLELITHIASIS



CHOLELITHIASIS

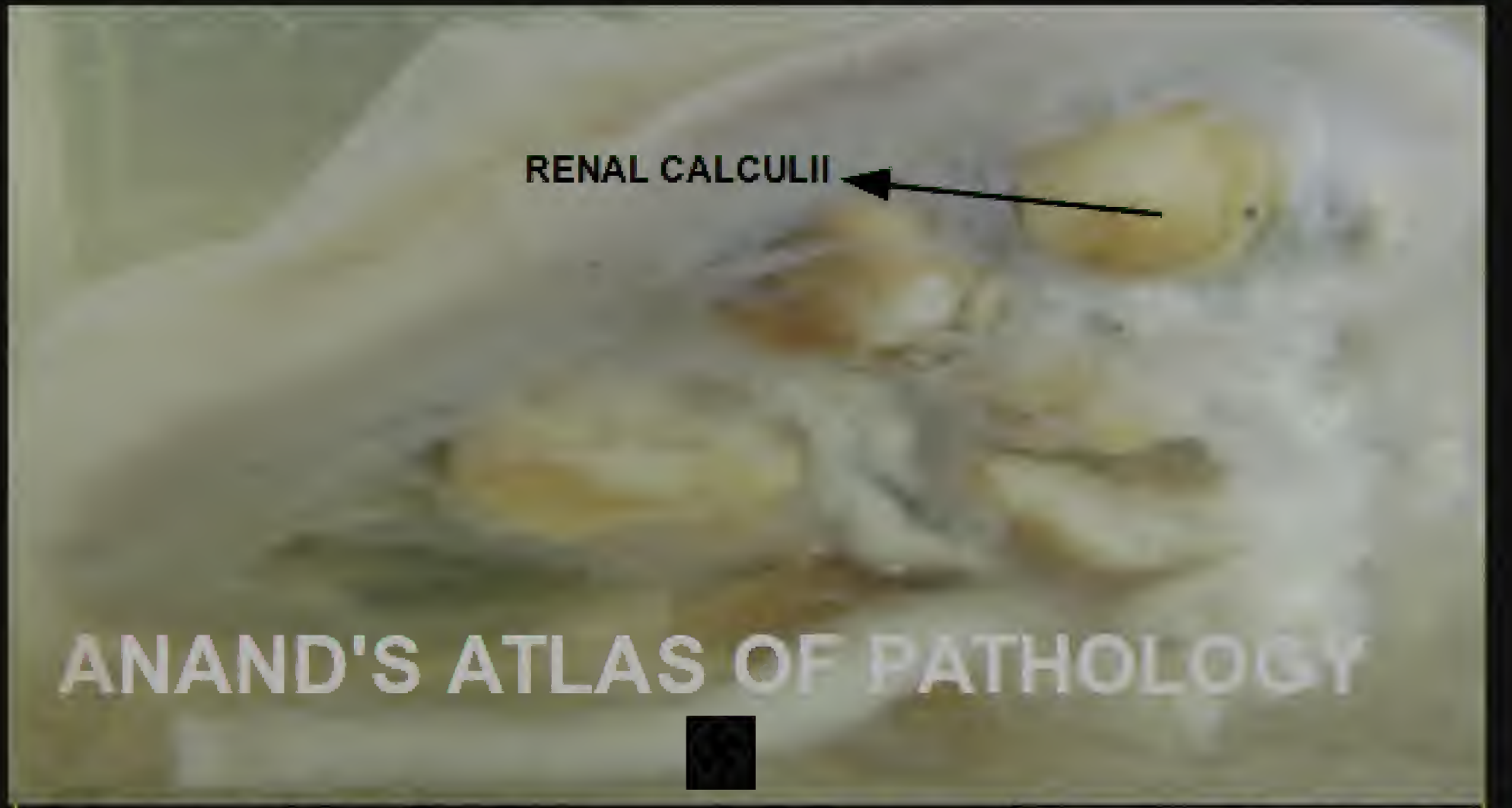
THE GALL BLADDER MUCOSA IS IRREGULAR DUE TO CHRONIC INFLAMMATION

MECHANICAL MANIPULATION OF GALL BLADDER CAUSES FRAGMENTATION OF GALL STONES

CALCULII ARE USUALLY CHOLESTEROL STONES

CHOLESTEROL STONES ARE USUALLY YELLOW, MULTIPLE AND HAVE FACETED SURFACES

RENAL CALCULII



RENAL CALCULII

ALSO CALLED AS UROLITHIASIS

RENAL CALCULII ARE USUALLY UNILATERAL

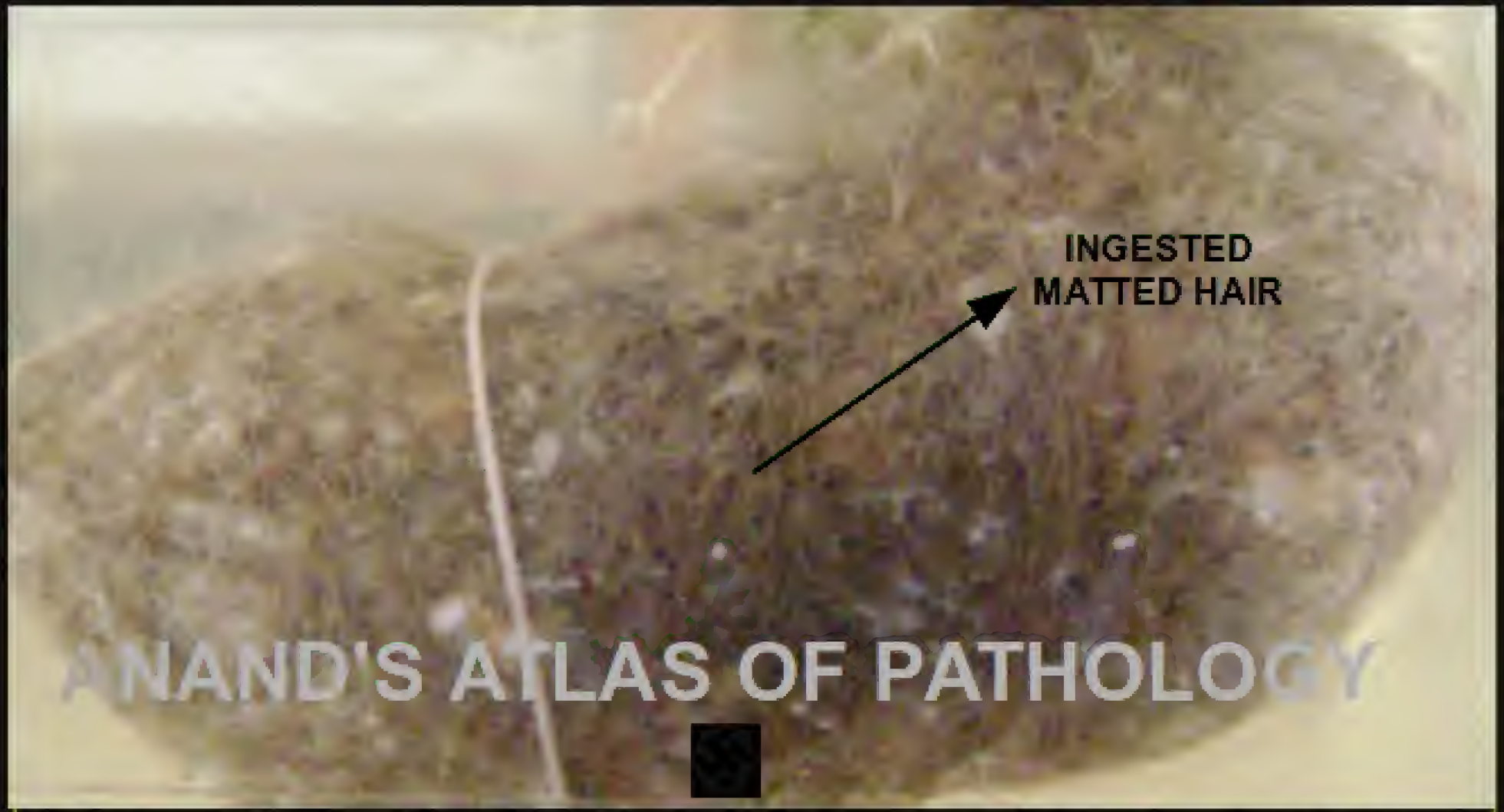
COMMONEST SITES OF CALCULII ARE RENAL PELVIS AND CALYCES

MANY STONES ARE FOUND

STAGHORN CALCULII IS DUE TO PROGRESSIVE ACCUMULATION OF SALTS

MASSIVE STONES ARE USUALLY COMPOSED OF MAGNESIUM AMMONIUM PHOSPHATE

TRICHOBEZOAR



TRICHOBEZOAR

TRICHOBEZOAR OCCURS ALMOST EXCLUSIVELY IN FEMALES

80% OF THE PATIENTS SUFFER FROM PSYCHIATRIC DISORDERS

TRICHOBEZOAR RESULTS FROM INGESTION OF HAIR

PATHOLOGICALLY IT GIVES RISE TO GASTRODUODENAL ULCERATION


THANK YOU

Anand's Atlas of Pathology

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